



# SINCRONÍA

Para dos pianos a cuatro manos

Lorena Mal  
Emilio Hinojosa Carrión

# Sincronía

## Mapa de datos de orden de escalas

Escala musical - Escala en tamaño promedio de las especies

♩ - 60

8va

88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65  
44 43 42 41 40  
64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45  
34 33 32 31 30 29 28 27 26 25 24 23 22 21  
39 38 37 36 35  
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



- |  |   |  |
|--|---|--|
| C88: Siphonaptera [Pulga, do 9]                | 58: Thunnus [Atún, fa#6]                          | 30: Capra aegagrus hircus [Cabra, re 4]    |
| 87: Cimex lectularius [Chinche, si 8]          | 57: Oryctolagus cuniculus [Conejo, fa 6]          | 29: Spheniscidae [Pingüino, do#4]          |
| 86: Lepidoptera [Mariposa, la#8]               | 56: Nothura maculosa [Perdize, mi 6]              | 28: Homo sapiens [Humano, do 4]            |
| 85: Anisoptera [Libelula, la 8]                | 55: Melopsittacus undulatus [Perico, re#6]        | 27: Sus scrofa domestica [Cerdo, si 3]     |
| 84: Hylotrupes bajulus [Polilla, sol#8]        | 54: Gallus gallus domesticus [Gallina, re 6]      | 26: Equus africanus-ferus [Mula, la#3]     |
| 83: Caelifera [Saltamontes, sol 8]             | 53: Anas platyrhynchos [Pato, do#6]               | 25: Lacertilia [Lagarto, la 3]             |
| 82: Pycnogonida [Araña de mar, fa#8]           | 52: Anser anser [Ganso, do 6]                     | 24: Cervus elaphus [Venado, sol#3]         |
| 81: Achaearanea tepidariorum [Araña, fa 8]     | 51: Falco peregrinus [Halcón, si 5]               | 23: Antelope cervicapra [Antílope, sol 3]  |
| 80: Helix aspersa [Caracol, mi 8]              | 50: Accipitridae [Águila, la#5]                   | 22: Macropus giganteus [Cangüro, fa#3]     |
| 79: Mesodesma mactroides [Almeja, re#8]        | 49: Grus grus [Cisne, la 5]                       | 21: Panthera leo [León, fa 3]              |
| 78: Mytilus galloprovincialis [Mejillón, re 8] | 48: Felis silvestris catus [Gato, sol#5]          | 20: Panthera tigris [Tigre, mi 3]          |
| 77: Podarcis hispanicus [Lagartija, do#8]      | 47: Erethizon dorsatum [Puercoespín, sol 5]       | 19: Rhea americana [Avestruz, re#3]        |
| 76: Caridea [Camarón, do 8]                    | 46: Dasypodidae [Armadillo, fa#5]                 | 18: Lama glama [Llama, re 3]               |
| 75: Palinurus elephas [Langosta, si 7]         | 45: Talpa europaea [Topo, fa 5]                   | 17: Phoca vitulina [Foca, do#3]            |
| 74: Carcinus maenas [Cangrejo, la#7]           | 44: Marmota marmota [Marmota, mi 5]               | 16: Equus ferus caballus [Caballo, do 3]   |
| 73: Salamandra [Salamandra, la 7]              | 43: Strigidae [Buho, re #5]                       | 15: Camelus bactrianus [Camello, si 2]     |
| 72: Trochilinae [Colibrí, sol#7]               | 42: Ornithorhynchus anatinus [Ornitorrinco, re 5] | 14: Odobenus rosmarus [Morsa, la#2]        |
| 71: Rattus norvegicus [Rata, sol 7]            | 41: Pelecanus onocrotalus [Pelicano, do #5]       | 13: Gorilla [Gorila, la 2]                 |
| 70: Asteroidea [Estrella de mar, fa#7]         | 40: Testudines [Tortuga, do 5]                    | 12: Tursiops truncatus [Delfín, sol#2]     |
| 69: Passer domesticus [Gorrión, fa 7]          |   | 11: Bos primigenius taurus [Vaca, sol 2]   |
| 68: Pelophylax perezii [Rana, mi 7]            |   | 10: Bos primigenius taurus [Toro, fa#2]    |
| 67: Bufo bufo [Sapo, re #7]                    |   | 9: Bos primigenius taurus [Buey, fa 2]     |
| 66: Serpentes [Serpiente, re 7]                |   | 8: Ursus arctos arctos [Oso, mi 2]         |
| 65: Didelphimorphia [Zarigüeya, do #7]         |   | 7: Otaria flavescens [Lobo Marino, re#2]   |
| 64: Suncus murinus [Musaraña, do 7]            |   | 6: Bos primigenius indicus [Cebuino, re 2] |
| 63: Corynorhinus townsendii [Murciélago, si 6] |   | 5: Bison bison [Búfalo, do#2]              |
| 62: Columba livia [Paloma, la#6]               |   | 4: Selachimorph [Tiburón, do 2]            |
| 61: Iguanidae [Iguana, la 6]                   |   | 3: Giraffa camelopardalis [Girafa, si 1]   |
| 60: Mustela putorius furo [Hurón, sol#6]       |   | 2: Loxodonta africana [Elefante, la#1]     |
| 59: Erinaceinae [Erizo, sol 6]                 |   | 1: Balaena mysticetus [Ballena, la 1]      |

## **Índice de movimientos**

1. Movimiento no.1-A:  
*'Estado físico en calma ó Andante'*
2. Movimiento no.2:  
*'Estado físico activo ó Vivace / Presto'*
3. Movimiento no.1-B:  
*'Estado físico en calma ó Andante'*
4. Movimiento no.3:  
*'Estado físico en hibernación y sueño ó  
Larghissimo / Tranquillo'*
5. Movimiento no.4:  
*'Estado físico límite ó Prestissimo'*

## Sincronía

### Mapa de datos para movimiento no.1: 'Estado físico en calma ó Andante'

Estado rítmico cardíaco en calma de 88 especies animales (clave de Sol)

♩ - 60  
8<sup>va</sup>

- |   |  |
|---|--|
| 88: Siphonaptera [Pulga, <b>do 9</b> ]   1/16 1/32                | 60: Mustela putorius furo [Hurón, <b>sol#6</b> ]   1/16          |
| 87: Cimex lectularius [Chinche, <b>si 8</b> ]   1/4               | 59: Erinaceinae [Erizo, <b>sol 6</b> ]   1/16 1/32               |
| 86: Lepidoptera [Mariposa, <b>la#8</b> ]   1/4                    | 58: Thunnus [Atún, <b>fa#6</b> ]   1/8                           |
| 85: Anisoptera [Libelula, <b>la 8</b> ]   1/8                     | 57: Oryctolagus cuniculus [Conejo, <b>fa 6</b> ]   1/16 1/32     |
| 84: Hylotrupes bajulus [Polilla, <b>sol#8</b> ]   3/4             | 56: Nothura maculosa [Perdize, <b>mi 6</b> ]   1/32              |
| 83: Caelifera [Saltamontes, <b>sol 8</b> ]   1/8 1/16             | 55: Melopsittacus undulatus [Perico, <b>re#6</b> ]   c           |
| 82: Pycnogonida [Araña de mar, <b>fa#8</b> ]   10/4               | 54: Gallus gallus domesticus [Gallina, <b>re 6</b> ]   1/16 1/32 |
| 81: Achaeareanea tepidariorum [Araña, <b>fa 8</b> ]   1/4 1/32    | 53: Anas platyrhynchos domesticus [Pato, <b>do#6</b> ]   1/32    |
| 80: Helix aspersa [Caracol, <b>mi 8</b> ]   2/4                   | 52: Anser anser [Ganso, <b>do 6</b> ]   1/16 1/32                |
| 79: Mesodesma mactroides [Almeja, <b>re#8</b> ]   60/4            | 51: Falco peregrinus [Halcón, <b>si 5</b> ]   1/16               |
| 78: Mytilus galloprovincialis [Mejillón, <b>re 8</b> ]   10/4     | 50: Accipitridae [Águila, <b>la#5</b> ]   c                      |
| 77: Podarcis hispanicus [Lagartija, <b>do#8</b> ]   1/8 1/16 1/32 | 49: Grus grus [Cisne, <b>la 5</b> ]   1/8 1/32                   |
| 76: Caridea [Camarón, <b>do 8</b> ]   1/16                        | 48: Felis silvestris catus [Gato, <b>sol#5</b> ]   1/8           |
| 75: Palinurus elephas [Langosta, <b>si 7</b> ]   1/4              | 47: Erethizon dorsatum [Puercoespín, <b>sol 5</b> ]   1/4        |
| 74: Carcinus maenas [Cangrejo, <b>la#7</b> ]   1/4                | 46: Dasypodidae [Armadillo, <b>fa#5</b> ]   1/16 1/32            |
| 73: Salamandra [Salamandra, <b>la 7</b> ]   1/4 1/8               | 45: Talpa europaea [Topo, <b>fa 5</b> ]   1/16                   |
| 72: Trochilinae [Colibrí, <b>sol#7</b> ]   1/16                   | 44: Marmota marmota [Marmota, <b>mi 5</b> ]   1/8                |
| 71: Rattus norvegicus [Rata, <b>sol 7</b> ]   c                   | 43: Strigidae [Buho, <b>re #5</b> ]   1/16 1/32                  |
| 70: Asteroidea [Estrella de mar, <b>fa#7</b> ]   10/4             | 42: Ornithorhynchus anatinus [Ornitorrinco, <b>re 5</b> ]   1/8  |
| 69: Passer domesticus [Gorrión, <b>fa 7</b> ]   c                 | 41: Pelecanus onocrotalus [Pelicano, <b>do #5</b> ]   1/8 1/16   |
| 68: Pelophylax perezi [Rana, <b>mi 7</b> ]   1/4                  | 40: Testudines [Tortuga, <b>do 5</b> ]   2/4                     |
| 67: Bufo bufo [Sapo, <b>re #7</b> ]   1/4 1/8                     |  |
| 66: Serpentes [Serpiente, <b>re 7</b> ]   6/4                     |  |
| 65: Didelphimorphia [Zarigüeya, <b>do #7</b> ]   1/16 1/32        |  |
| 64: Suncus murinus [Musaraña, <b>do 7</b> ]   c                   |  |
| 63: Corynorhinus townsendii [Murciélago, <b>si 6</b> ]   c        |  |
| 62: Columba livia [Paloma, <b>la#6</b> ]   1/16 1/32              |  |
| 61: Iguanidae [Iguana, <b>la 6</b> ]   2/4                        |  |

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.

## Sincronía

### Mapa de datos para movimiento no.1: 'Estado físico en calma ó Andante'

Estado rítmico cardíaco en calma de 88 especies animales (clave de Fa)

♩ - 60

- 39: Apteryx australis [Kiwi, **si 4**] | 1/8 1/16  
 38: Phascolarctos cinereus [Koala, **la#4**] | 1/8  
 37: Octopus vulgaris [Pulpo, **la 4**] | 2/4  
 36: Vulpini [Zorro, **sol#4**] | 1/8  
 35: Pan troglodytes [Chimpance, **sol 4**] | 1/8  
 34: Canis latrans [Coyote, **fa#4**] | 1/8  
 33: Canis lupus familiaris [Perro, **fa 4**] | 1/8 1/16  
 32: Canis lupus [Lobo, **mi 4**] | 1/8 1/16 1/32  
 31: Ovis orientalis aries [Oveja, **re#4**] | 1/4  
 30: Capra aegagrus hircus [Cabra, **re 4**] | 1/8 1/16  
 29: Spheniscidae [Pingüino, **do#4**] | 1/8 1/16  
 28: Homo sapiens [Humano, **do 4**] | 1/8 1/32  
 27: Sus scrofa domestica [Cerdo, **si 3**] | 1/8 1/16  
 26: Equus africanus-ferus [Mula, **la#3**] | 2/4  
 25: Lacertilia [Lagarto, **la 3**] | 6/4  
 24: Cervus elaphus [Venado, **sol#3**] | 1/8 1/16  
 23: Antilope cervicapra [Antílope, **sol 3**] | 1/8 1/16  
 22: Macropus giganteus [Cangüro, **fa#3**] | 1/8  
 21: Panthera leo [León, **fa 3**] | 1/4 1/8  
 20: Panthera tigris [Tigre, **mi 3**] | 1/4  
 19: Rhea americana [Avestruz, **re#3**] | 1/8  
 18: Lama glama [Llama, **re 3**] | 1/4  
 17: Phoca vitulina [Foca, **do#3**] | 1/8  
 16: Equus ferus caballus [Caballo, **do 3**] | 1/4 1/8

- 15: Camelus bactrianus [Camello, **si 2**] | 2/4  
 14: Odobenus rosmarus [Morsa, **la#2**] | 1/8 1/16 1/32 1/64  
 13: Gorilla [Gorila, **la 2**] | 1/8 1/16  
 12: Tursiops truncatus [Delfín, **sol#2**] | 1/16 1/32 1/64  
 11: Bos primigenius taurus [Vaca, **sol 2**] | 1/8 1/16  
 10: Bos primigenius taurus [Toro, **fa#2**] | 1/4  
 9: Bos primigenius taurus [Buey, **fa 2**] | 1/4 1/8  
 8: Ursus arctos arctos [Oso, **mi 2**] | 1/8 1/16 1/32  
 7: Otaria flavescens [Lobo Marino, **re#2**] | 1/8  
 6: Bos primigenius indicus [Cebuino, **re 2**] | 1/4  
 5: Bison bison [Búfalo, **do#2**] | 1/4  
 4: Selachimorph [Tiburón, **do 2**] | 3/4  
 3: Giraffa camelopardalis [Girafa, **si 1**] | 1/4  
 2: Loxodonta africana [Elefante, **la#1**] | 3/4  
 1: Balaena mysticetus [Ballena, **la 1**] | 3/4

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.

# Sincronía

## Movimiento no.1-A: 'Estado físico en calma ó Andante'

Estado rítmico cardíaco en calma de 88 especies animales

Lorena Mal  
Emilio Hinojosa Carrión  
[2013-2014]

♩ - 60

The musical score is written for a piano and consists of several staves. The top two staves are for the right hand, and the bottom two are for the left hand. The score is in 4/4 time and begins with a treble clef and a key signature of one sharp (F#). The tempo is marked as 'Andante' with a quarter note equal to 60 beats per minute. The score is divided into three measures. In the first measure, the right hand has a whole rest, and the left hand plays a steady eighth-note pattern. In the second measure, the right hand plays a melodic line starting on G5 (marked '8va') with a dotted quarter note, followed by eighth notes, and ending with a quarter rest. The left hand continues its eighth-note pattern. In the third measure, both hands have whole rests.

Sincronía. Movimiento no.1-A: 'Estado físico en calma ó Andante'

4

8va

The image shows a musical score for a piece titled 'Sincronía. Movimiento no.1-A: 'Estado físico en calma ó Andante''. The score is written for a grand piano and includes a section marked '8va' (8va) with a dashed line above it. The score is divided into three measures. The first measure starts with a treble clef and a key signature of one sharp (F#). The second measure continues the melody in the treble clef. The third measure concludes the phrase. The bass clef part consists of a steady eighth-note accompaniment. Below the main score, there are several empty staves for other instruments, including two treble clefs and two bass clefs.

Musical score for 'Estado físico en calma ó Andante'. The score is written for a grand staff (treble and bass clefs) and includes a piano part (piano clef) and a vocal part (soprano clef). The tempo is marked 'Andante'. The score is divided into two systems, each with two measures. The first system starts with a measure rest in the piano part, followed by a vocal line starting on a whole note G4. The second system continues the vocal line with eighth notes and includes a piano accompaniment with eighth notes and sixteenth notes. The score is marked with a '7' and an '8va' (octave) marking. The piano part is marked with a 'p' (piano) dynamic. The vocal part is marked with a 'v' (vocal) dynamic. The score is written in a key signature of one sharp (F#) and a 3/4 time signature.



Musical score for 'Estado físico en calma ó Andante'. The score is written for piano and includes a grand staff with treble and bass clefs, and a separate bass staff. The piece is in 4/33 time and features a key signature of one sharp (F#). The score is divided into two measures. The first measure starts with a measure rest of 8 measures, indicated by a dashed line and the number (8). The second measure starts with an 8va octave sign and a measure rest of 8 measures, also indicated by a dashed line and the number 8va. The piano part consists of a series of eighth notes in the right hand and a series of eighth notes in the left hand. The bass staff contains a series of eighth notes. The score is marked with 'Ped.' (Pedal) and includes a '9' at the beginning of the first measure.

11

The musical score is presented in two systems. The first system, starting at measure 11, consists of a grand staff (treble and bass clefs) and a lower system with two bass staves. The piano part in the grand staff has a melodic line with grace notes and rests. The celesta part has a rhythmic accompaniment. The lower system contains empty staves.

13

The image displays a musical score for a piece titled 'Estado físico en calma ó Andante'. The score is written for a piano and includes a grand staff with two treble clefs and two bass clefs. The first system contains the piano part, starting at measure 13. The right hand (top staff) begins with a treble clef, a key signature of one sharp (F#), and a common time signature. The left hand (bottom staff) begins with a bass clef and a common time signature. The piano part consists of a series of chords and melodic lines. The right hand plays a sequence of chords, starting with a triad of F#, A, and C, followed by a series of chords that move up the scale. The left hand plays a rhythmic accompaniment of eighth notes, starting with a bass line of F#, A, C, and E, followed by a series of notes that move up the scale. The score is divided into two measures by a vertical bar line. Below the piano part, there are two systems of empty staves, each consisting of two treble clefs and two bass clefs, indicating that the score continues on the following page.

15

The image shows a musical score for a piece titled 'Sincronía. Movimiento no.1-A: 'Estado físico en calma ó Andante''. The score is on page 7 of 33. It features a grand staff with two treble clefs and two bass clefs. The first system contains two measures of music. The first measure has a treble clef staff with a key signature of one sharp (F#) and a common time signature (C). The melody consists of a series of quarter notes: F#4, G4, A4, B4, C5, D5, E5, F#5. The bass clef staff has a series of quarter notes: C3, D3, E3, F3, G3, A3, B3, C4. The second measure has a treble clef staff with a key signature of one sharp (F#) and a common time signature (C). The melody consists of a series of quarter notes: F#4, G4, A4, B4, C5, D5, E5, F#5. The bass clef staff has a series of quarter notes: C3, D3, E3, F3, G3, A3, B3, C4. The second system contains two measures of music. The first measure has a treble clef staff with a key signature of one sharp (F#) and a common time signature (C). The melody consists of a series of quarter notes: F#4, G4, A4, B4, C5, D5, E5, F#5. The bass clef staff has a series of quarter notes: C3, D3, E3, F3, G3, A3, B3, C4. The second measure has a treble clef staff with a key signature of one sharp (F#) and a common time signature (C). The melody consists of a series of quarter notes: F#4, G4, A4, B4, C5, D5, E5, F#5. The bass clef staff has a series of quarter notes: C3, D3, E3, F3, G3, A3, B3, C4.

Musical score for 'Estado físico en calma ó Andante'. The score is written for piano and includes a grand staff (treble and bass clefs) and two additional staves (treble and bass clefs). The first system shows measures 17 and 18. Measure 17 is marked with a circled 8 and a dashed line above it. The key signature is one sharp (F#). The tempo is Andante. The score features a complex rhythmic pattern in the right hand, with a steady bass line in the left hand. The second system shows measures 19 and 20, which are mostly empty staves.

19

The musical score is presented in a grand staff format, consisting of two staves with a brace on the left. The upper staff is in treble clef and the lower staff is in bass clef. The score begins with a measure rest in the first measure. In the second measure, a sharp sign (#) and the word 'poco' are written above the grand staff. The piano part consists of eighth notes with slurs and accents. The bass clef part has a similar rhythmic pattern. Below the grand staff, there are two more staves, one in treble clef and one in bass clef, which are currently empty.

21

The musical score is presented on a page with a vertical margin line on the left. It consists of several staves. The first system includes a grand staff with two treble clefs and two bass clefs. The first treble staff begins with a treble clef, a key signature of one sharp (F#), and a time signature of 3/4. It contains a melodic line with a first ending bracket. The second treble staff is part of a piano accompaniment, featuring a steady eighth-note pattern. The first bass staff contains a melodic line with a key signature change to two sharps (F# and C#) in the second measure. The second bass staff provides a bass line with a steady eighth-note pattern. Below the first system are two systems of empty staves, each consisting of two treble clefs and two bass clefs, indicating where other instruments would play.

23

The image shows a musical score for a piece titled 'Sincronía. Movimiento no.1-A: 'Estado físico en calma ó Andante''. The score is on page 11 of 33. It begins at measure 23, marked with a treble clef and a key signature of one sharp (F#). The score is written for a grand piano, with the right hand on the upper staves and the left hand on the lower staves. The right hand part features a complex rhythmic pattern with many sixteenth notes and rests, while the left hand part has a more melodic and rhythmic accompaniment. The score is divided into two systems. The first system contains the first two measures, and the second system contains the next two measures. The bottom half of the page shows empty staves for other instruments, including two treble clefs and two bass clefs, indicating that this is a multi-staff score.



25 *8va*

*f* *8va*

27

8

The musical score consists of several staves. The top two staves are for the piano, with the right hand playing chords and the left hand playing a rhythmic pattern. A 'Ped.' (pedal) marking is present under the first measure. The bottom two staves are for the vocal line, with a dashed line and an 8-measure repeat sign above them. The score is in 3/4 time and features a key signature of one sharp (F#).

29 (8) 1

The musical score is arranged in a grand staff format with two systems. The first system consists of four staves: a grand staff (treble and bass clefs) and two bass clef staves. The second system consists of four staves: a grand staff and two bass clef staves. The first system contains musical notation, including notes, rests, and accidentals. The second system contains rests in all staves. A measure rest symbol (a '1' in a box) is present at the beginning of the first system. A dashed line with a circled '8' above it spans across the first system. A second dashed line with a circled '8' above it spans across the second system. The key signature is one sharp (F#).

31

*Ped.*

33

8<sup>va</sup>

Red.

8<sup>va</sup>

The image shows a page of musical notation for a piece titled 'Sincronía. Movimiento no.1-A: 'Estado físico en calma ó Andante''. The page is numbered 16 out of 33. The score is written for a piano and includes a double bass line. The key signature has one sharp (F#), and the time signature is 3/4. The score is divided into two systems. The first system starts at measure 33. The piano part features a melodic line in the right hand with eighth notes and a rhythmic accompaniment in the left hand. A dynamic marking 'Red.' is present. The double bass part has a similar rhythmic pattern. The second system continues the piano part with a melodic line in the right hand, marked '8<sup>va</sup>' (octave), and a rhythmic accompaniment in the left hand. The double bass part is mostly empty in this system.

35

*pva*

*Ped.*

8

37

(8)-----1

The musical score is divided into five systems. The first system (measures 37-40) features a grand staff with a treble clef and a bass clef. The second system (measures 41-44) has a bass clef. The third system (measures 45-48) has a treble clef. The fourth system (measures 49-52) has a bass clef. The fifth system (measures 53-56) has a bass clef. A dashed line with a circled '8' and a '1' indicates a measure rest for 8 measures.

39

⑧



41

The musical score is written for piano and consists of several systems. The first system (measures 41-44) features a treble clef staff with a whole rest and a bass clef staff with a rhythmic pattern of eighth notes and quarter notes. The second system (measures 45-48) continues the bass clef staff with a similar rhythmic pattern. The third system (measures 49-52) is marked with a circled 8 (8) and shows a treble clef staff with a series of chords, while the bass clef staff has whole rests. The fourth system (measures 53-56) shows the bass clef staff with a rhythmic pattern of eighth notes and quarter notes, with a bracket labeled 'Ped.' underneath. The fifth system (measures 57-60) continues the bass clef staff with a rhythmic pattern of eighth notes and quarter notes, with a bracket labeled '8va' underneath. The score is written in a key signature of one sharp (F#) and a time signature of 4/4.

45

First system of musical notation, measures 45-48. It consists of a grand staff with two treble clefs. The upper staff is empty. The lower staff contains a rhythmic pattern of eighth notes: two beamed eighth notes, followed by a quarter note, then two beamed eighth notes, a quarter note, and finally a quarter note with a fermata. The remaining three measures are empty.

Second system of musical notation, measures 49-52. It consists of a grand staff with two bass clefs. All four staves are empty.

Third system of musical notation, measures 53-56. It consists of a grand staff with two treble clefs. The upper staff begins with a measure containing two chords: a triad (F#, G, A) and a dyad (B, C), both with a fermata. The remaining three measures are empty. The lower staff is empty.

Fourth system of musical notation, measures 57-60. It consists of a grand staff with two bass clefs. The upper staff contains a rhythmic pattern of quarter notes with fermatas: G, F#, E, D, C, B, A, G. The lower staff contains a rhythmic pattern of eighth notes with fermatas: G, F#, E, D, C, B, A, G.

8<sup>vb</sup>.....

49

The musical score for page 49, measures 49-50, is arranged in a system with five staves. The top two staves are for the piano, both containing whole rests. The third staff is the bass line, featuring a rhythmic pattern of eighth notes with slurs and accents, starting on a sharp sign. The fourth staff is for the guitar, with a dashed line above it labeled '8va'. It contains a melodic line with a slur and a sharp sign. The fifth staff is another piano part, containing whole rests. The sixth staff is the bass line, showing a sequence of notes with slurs and accents. The seventh staff is the guitar part, with a dashed line below it labeled 'Ped.' and a slur over a sequence of notes.

51

Musical staff system 1, measures 51-53. It consists of two treble clef staves. All notes in both staves are whole rests, indicating a silent passage.

Musical staff system 2, measures 51-53. It consists of two bass clef staves. The upper staff contains a complex rhythmic pattern of eighth and sixteenth notes with various accidentals. The lower staff contains a simpler rhythmic pattern of eighth notes.

Musical staff system 3, measures 51-53. It consists of two treble clef staves. The upper staff has a few notes with accidentals and rests, with a circled '8' above the first measure. The lower staff contains whole rests.

Musical staff system 4, measures 51-53. It consists of two bass clef staves. The upper staff has notes with rests and accidentals. The lower staff has notes with rests and accidentals, with a circled '8' below the first measure.

54

The musical score for measures 54-55 is as follows:

- Measure 54:**
  - Piano (Right Hand):** A whole rest.
  - Piano (Left Hand):** A quarter note G4, quarter note A4, quarter note B4, quarter note C5, quarter note B4, quarter note A4, quarter note G4.
  - Bass (Right Hand):** A whole rest.
  - Bass (Left Hand):** A quarter note G2, quarter note A2, quarter note B2, quarter note C3, quarter note B2, quarter note A2, quarter note G2.
- Measure 55:**
  - Piano (Right Hand):** A quarter note G4, quarter note A4, quarter note B4, quarter note C5, quarter note B4, quarter note A4, quarter note G4.
  - Piano (Left Hand):** A quarter note G4, quarter note A4, quarter note B4, quarter note C5, quarter note B4, quarter note A4, quarter note G4.
  - Bass (Right Hand):** A quarter note G2, quarter note A2, quarter note B2, quarter note C3, quarter note B2, quarter note A2, quarter note G2.
  - Bass (Left Hand):** A quarter note G2, quarter note A2, quarter note B2, quarter note C3, quarter note B2, quarter note A2, quarter note G2.

*Red.* (Pedal) is indicated under the piano part in measure 54.

Measure 56 is indicated by a circled 8 (8) above a dashed line, but the musical notation for this measure is not visible in the provided image.

56

The musical score for 'Estado físico en calma ó Andante' begins at measure 56. It is written for piano and consists of several staves. The top two staves are for the right hand, and the bottom two are for the left hand. The music features a variety of rhythmic patterns, including eighth and sixteenth notes, and rests. A dynamic marking of *pp* (pianissimo) is present at the beginning of the piece. The score is divided into two measures, with a vertical bar line separating them. The notation includes various musical symbols such as clefs, notes, rests, and dynamic markings.

58

8<sup>vb</sup>

60

(8)

Ped.

(8)

8<sup>vb</sup>

Detailed description: This page of a musical score, numbered 27 of 33, contains measures 60 through 63. The score is written for a grand piano and consists of four systems of staves. The first system (measures 60-61) features a treble clef with a complex rhythmic pattern of eighth and sixteenth notes, while the bass clef is mostly silent. The second system (measures 62-63) shows a more active bass line with eighth notes and a treble line with sustained notes. The third system (measures 64-65) includes a piano pedal marking 'Ped.' and a dynamic marking '(8)'. The fourth system (measures 66-67) continues the bass line with a dynamic marking '(8)' and an 8va (8va) marking at the end. The key signature has one sharp (F#) and the time signature is 4/4.



62

8

8

Detailed description: This page of a musical score, numbered 28 of 33, contains measures 62 through 64. The score is written for a piano and features a complex texture with multiple staves. The top system consists of a grand staff (treble and bass clefs) and a separate bass clef staff. The middle system includes a grand staff and a bass clef staff. The bottom system features a grand staff and a bass clef staff. The music is in a key with one sharp (F#) and a 3/4 time signature. Measure 62 shows a dense texture with sixteenth-note patterns in the upper staves and a more rhythmic bass line. Measure 63 continues this texture with some melodic lines in the upper staves. Measure 64 concludes the section with a final melodic phrase in the upper staves and a rhythmic bass line. The score includes various musical notations such as beams, slurs, and dynamic markings like 'p' (piano).

65

Musical staff system 1: Grand staff with treble and bass clefs, containing whole rests in both staves.

Musical staff system 2: Grand staff with treble and bass clefs. The bass staff contains a rhythmic pattern of eighth notes with a sharp sign, while the treble staff contains whole rests.

Musical staff system 3: Grand staff with treble and bass clefs. The treble staff contains a melodic line with a sharp sign and a slur, while the bass staff contains a rhythmic pattern of eighth notes with a sharp sign.

Musical staff system 4: Grand staff with treble and bass clefs. The bass staff contains a rhythmic pattern of eighth notes with a sharp sign, while the treble staff contains whole rests.

(8)-----

8<sup>vb</sup>-----

69

The musical score for page 69, measures 69-71, is presented in a system with four staves. The top two staves are for the right hand, and the bottom two are for the left hand. The right hand section is marked with a circled '8' above the first staff and a circled '8' below the second staff. The left hand section is marked with a circled '8' below the first staff and a circled '8' below the second staff. The music is in 3/4 time and features a key signature of one sharp (F#). The right hand part consists of a melodic line with some rests, while the left hand part features a rhythmic accompaniment with eighth and sixteenth notes, including some slurs and ties.

72

Musical score for 'Estado físico en calma ó Andante' starting at measure 72. The score is in 3/4 time and consists of two systems. The first system has two grand staves (treble and bass clef) with rests in the upper staves and rhythmic patterns in the lower staves. The second system has four staves: two grand staves (treble and bass clef) with notes and rests, and two bass staves with rhythmic patterns. A dashed line with the number (8) is above the first grand staff of the second system.

75

The musical score is divided into four systems. The first system consists of two grand staves (treble and bass clef) with rests in all measures. The second system consists of two bass staves. The top staff contains a rhythmic pattern of eighth and sixteenth notes, while the bottom staff contains rests. The third system consists of two grand staves. The top staff has a melodic line with a slur and a circled 'S' above it, with a dotted line above the staff. The bottom staff has a melodic line with a sharp sign. The fourth system consists of two bass staves. The top staff contains a rhythmic pattern of eighth notes, and the bottom staff contains rests.

79

The musical score is divided into four systems. The first system (measures 79-82) features a grand staff with two treble clefs and two bass clefs. The upper two staves are mostly empty with rests, while the lower two staves contain a rhythmic pattern of eighth and sixteenth notes. The second system (measures 83-86) continues this pattern in the lower two staves. The third system (measures 87-90) features a treble clef and two treble clefs. The upper staff has a melodic line with a sharp sign and a slur, while the lower two staves are empty with rests. The fourth system (measures 91-94) features a bass clef and two bass clefs. The upper staff has a rhythmic pattern of eighth and sixteenth notes, while the lower two staves are empty with rests.

## Sincronía

### Mapa de datos para movimiento no.2: 'Estado físico activo ó Vivace / Presto'

Estado rítmico cardíaco activo de 22 especies animales (clave de Sol)

♩ - 60  
8<sup>va</sup>

88: Siphonaptera [Pulga, do 9] | s/d  
 87: Cimex lectularius [Chinche, si 8] | s/d  
 86: Lepidoptera [Mariposa, la#8] | s/d  
 85: Anisoptera [Libelula, la 8] | s/d  
 84: Hylotrupes bajulus [Polilla, sol#8] | s/d  
 83: Caelifera [Saltamontes, sol 8] | s/d  
 82: Pycnogonida [Araña de mar, fa#8] | s/d  
 81: Achaeareanea tepidariorum [Araña, fa 8] | s/d  
 80: Helix aspersa [Caracol, mi 8] | s/d  
 79: Mesodesma mactroides [Almeja, re#8] | s/d  
 78: Mytilus galloprovincialis [Mejillón, re 8] | s/d  
 77: Podarcis hispanicus [Lagartija, do#8] | s/d  
 76: Caridea [Camarón, do 8] | s/d  
 75: Palinurus elephas [Langosta, si 7] | s/d  
 74: Carcinus maenas [Cangrejo, la#7] | s/d  
 73: Salamandra [Salamandra, la 7] | s/d  
 72: Trochilinae [Colibrí, sol#7] | s/d  
 71: Rattus norvegicus [Rata, sol 7] | s/d  
 70: Asteroidea [Estrella de mar, fa#7] | s/d  
 69: Passer domesticus [Gorrión, fa 7] | s/d  
 68: Pelophylax perezi [Rana, mi 7] | s/d  
 67: Bufo bufo [Sapo, re #7] | s/d  
 66: Serpentes [Serpiente, re 7] | s/d  
 65: Didelphimorphia [Zarigüeya, do #7] | s/d  
 64: Suncus murinus [Musaraña, do 7] | **CO: c**  
 63: Corynorhinus townsendii [Murciélago, si 6] | **V: c**  
 62: Columba livia [Paloma, la#6] | s/d  
 61: Iguanidae [Iguana, la 6] | s/d

60: Mustela putorius furo [Hurón, sol#6] | s/d  
 59: Erinaceinae [Erizo, sol 6] | **CA: 1/16 1/32**  
 58: Thunnus [Atún, fa#6] | s/d  
 57: Oryctolagus cuniculus [Conejo, fa 6] | s/d  
 56: Nothura maculosa [Perdize, mi 6] | s/d  
 55: Melopsittacus undulatus [Perico, re#6] | s/d  
 54: Gallus gallus domesticus [Gallina, re 6] | s/d  
 53: Anas platyrhynchos domesticus [Pato, do#6] | s/d  
 52: Anser anser [Ganso, do 6] | s/d  
 51: Falco peregrinus [Halcón, si 5] | s/d  
 50: Accipitridae [Águila, la#5] | s/d  
 49: Grus grus [Cisne, la 5] | s/d  
 48: Felis silvestris catus [Gato, sol#5] | **CO: 1/16 1/32**  
 47: Erethizon dorsatum [Puercoespín, sol 5] | s/d  
 46: Dasypodidae [Armadillo, fa#5] | s/d  
 45: Talpa europaea [Topo, fa 5] | **CA: 1/16 1/32**  
 44: Marmota marmota [Marmota, mi 5] | s/d  
 43: Strigidae [Buho, re #5] | s/d  
 42: Ornithorhynchus anatinus [Ornitorrinco, re 5] | **N: 2/4**  
 41: Pelecanus onocrotalus [Pelicano, do #5] | s/d  
 40: Testudines [Tortuga, do 5] | **N: 60/4**

CA: Caminata  
 CO: Corre  
 V: Vuelo  
 N: Nado

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.

## Sincronía

### Mapa de datos para movimiento no.2: 'Estado físico activo ó Vivace / Presto'

Estado rítmico cardíaco activo de 22 especies animales (clave de Fa)

♩ - 60

- 39: Apteryx australis [Kiwi, si 4] | s/d  
 38: Phascolarctos cinereus [Koala, **la#4**] | CA: 1/16 1/32  
 37: Octopus vulgaris [Pulpo, la 4] | s/d  
 36: Vulpini [Zorro, **sol#4**] | CA: 1/64  
 35: Pan troglodytes [Chimpance, sol 4] | s/d  
 34: Canis latrans [Coyote, fa#4] | s/d  
 33: Canis lupus familiaris [Perro, fa 4] | s/d  
 32: Canis lupus [Lobo, **mi 4**] | CO: 1/8  
 31: Ovis orientalis aries [Oveja, **re#4**] | CA: 1/8 1/16  
 30: Capra aegagrus hircus [Cabra, **re 4**] | CA: 1/8 1/32  
 29: Spheniscidae [Pingüino, do#4] | s/d  
 28: Homo sapiens [Humano, **do 4**] | CO: 1/16 1/32  
 27: Sus scrofa domestica [Cerdo, **si 3**] | CO: 1/16 1/32  
 26: Equus africanus-ferus [Mula, la#3] | s/d  
 25: Lacertilia [Lagarto, la 3] | s/d  
 24: Cervus elaphus [Venado, **sol#3**] | CO: 1/16 1/32  
 23: Antilope cervicapra [Antílope, sol 3] | s/d  
 22: Macropus giganteus [Cangüro, fa#3] | s/d  
 21: Panthera leo [León, fa 3] | s/d  
 20: Panthera tigris [Tigre, mi 3] | s/d  
 19: Rhea americana [Avestruz, re#3] | s/d  
 18: Lama glama [Llama, re 3] | s/d  
 17: Phoca vitulina [Foca, **do#3**] | CO: 1/16 1/32  
 16: Equus ferus caballus [Caballo, **do 3**] | CO: 1/8 1/16 1/32

- 15: Camelus bactrianus [Camello, si 2] | s/d  
 14: Odobenus rosmarus [Morsa, **la#2**] | CO: 1/16 1/32  
 13: Gorilla [Gorila, la 2] | s/d  
 12: Tursiops truncatus [Delfín, **sol#2**] | N: 1/8  
 11: Bos primigenius taurus [Vaca, sol 2] | s/d  
 10: Bos primigenius taurus [Toro, fa#2] | s/d  
 9: Bos primigenius taurus [Buey, fa 2] | s/d  
 8: Ursus arctos arctos [Oso, mi 2] | s/d  
 7: Otaria flavescens [Lobo Marino, **re#2**] | N: 3/4  
 6: Bos primigenius indicus [Cebuino, re 2] | s/d  
 5: Bison bison [Búfalo, do#2] | s/d  
 4: Selachimorph [Tiburón, do 2] | s/d  
 3: Giraffa camelopardalis [Girafa, **si 1**] | CO: 1/16 1/32  
 2: Loxodonta africana [Elefante, la#1] | s/d  
 1: Balaena mysticetus [Ballena, **la 1**] | N: 6/4

CA: Caminata  
 CO: Corre  
 V: Vuelo  
 N: Nado

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.



# Sincronía

## Movimiento no.2: 'Estado físico activo ó Vivace / Presto'

Estado rítmico cardíaco activo de 22 especies animales

Lorena Mal

Emilio Hinojosa Carrión

[2013-2014]

The musical score is written in 4/4 time and consists of several staves. The top two staves are grouped by a brace on the left. The first staff (treble clef) contains a rhythmic pattern of eighth notes with stems pointing up, followed by quarter notes with stems pointing down. The second staff (treble clef) contains a simple bass line with quarter notes. The third staff (bass clef) contains a rhythmic pattern of eighth notes with stems pointing down, followed by quarter notes with stems pointing up. The fourth staff (bass clef) is empty. The fifth staff (treble clef) contains a rhythmic pattern of eighth notes with stems pointing down, followed by quarter notes with stems pointing up. The sixth staff (treble clef) is empty. The seventh staff (bass clef) is empty. The eighth staff (bass clef) contains a rhythmic pattern of quarter notes with stems pointing down.

Sincronía. Movimiento no.2: 'Estado físico activo ó Vivace / Presto'

2

The musical score is written for a grand piano and consists of two systems. The first system contains the first two measures of the piece. The right hand (RH) plays a rhythmic pattern of eighth notes with slurs and accents, while the left hand (LH) plays a simple bass line of quarter notes. The second system contains measures three through six. The RH continues with a similar rhythmic pattern, while the LH plays a more complex accompaniment of eighth notes. A 'Ped.' (pedal) marking is present under the LH part in the second measure of the second system. The score concludes with a final measure in the second system where the RH has a final chord and the LH has a final bass line.

Sincronía. Movimiento no.2: 'Estado físico activo ó Vivace / Presto'

4

The musical score is written for a grand piano and consists of two systems. The first system contains the first two measures, and the second system contains the next two measures. The score is written in G major (one sharp) and 3/4 time. The right hand (RH) has a treble clef and contains a melodic line with a fermata over the first measure of each system. The left hand (LH) has a bass clef and contains a complex rhythmic accompaniment. The RH accompaniment consists of eighth-note chords in the first measure of each system, followed by quarter notes in the second measure. The LH accompaniment features a steady eighth-note bass line with chords in the first measure of each system, and a more complex rhythmic pattern in the second measure. The piece concludes with a final chord in the second measure of the second system.

Sincronía. Movimiento no.2: 'Estado físico activo ó Vivace / Presto'

4 / 20

The image displays a musical score for a piece titled 'Sincronía. Movimiento no.2: 'Estado físico activo ó Vivace / Presto''. The score is written for a piano and is divided into two systems. The first system consists of a grand staff (treble and bass clefs) and a single bass clef staff. The second system consists of a grand staff and two bass clef staves. The music is in 4/4 time and features a complex, rhythmic texture with many sixteenth and thirty-second notes. The key signature is one sharp (F#). The score includes various musical notations such as rests, accidentals, and dynamic markings. A measure number '6' is indicated at the beginning of the first system. The piece concludes with a double bar line and repeat dots.

Sincronía. Movimiento no.2: 'Estado físico activo ó Vivace / Presto'

8

*fff*

Ped.

Detailed description: This is a musical score for a piece titled 'Sincronía. Movimiento no.2: "Estado físico activo ó Vivace / Presto"'. The score is on page 5 of 20. It begins at measure 8. The top system consists of a grand staff with two treble clefs. The upper staff has a piano dynamic marking of *fff* and contains a whole note chord. The lower staff of the grand staff contains a complex rhythmic pattern of eighth notes and chords. Below the grand staff is a single bass clef staff with a whole rest. The next system features a treble clef staff with a complex rhythmic pattern of eighth notes and chords, and a bass clef staff with a whole rest. The final system consists of a bass clef staff with a complex rhythmic pattern of eighth notes and chords, and a lower bass clef staff with a complex rhythmic pattern of eighth notes and chords. A 'Ped.' (pedal) marking is present at the end of the piece.

9

The musical score is written for a piano and consists of two systems. The first system (measures 9-10) features a treble clef with a complex rhythmic pattern of eighth and sixteenth notes, and a bass clef with a simpler pattern. The second system (measures 11-12) continues the treble clef pattern and introduces a bass clef with a more active line. A dynamic marking of  $8^{vb}$  is present in the second system. The score concludes with a final measure in the second system.

11

The musical score is arranged in a system of seven staves. The top two staves are grouped by a brace on the left. The first staff is in treble clef, and the second is in bass clef. The third staff is in bass clef, and the fourth is in treble clef. The fifth and sixth staves are in treble clef, and the seventh staff is in bass clef. The music is in 2/4 time and features a key signature of one sharp (F#). The score consists of two measures. The first measure shows a complex rhythmic pattern in the upper staves, while the lower staves have simpler accompaniment. The second measure continues the pattern, with some staves showing rests or simplified accompaniment.

13

The musical score consists of several staves. The top two staves are grand staff notation with two treble clefs. The first measure of the first treble staff contains a fermata. The second measure of the first treble staff contains a whole rest. The first bass staff contains a complex rhythmic pattern of eighth and sixteenth notes. The second bass staff contains a melodic line starting with a half note G#4, followed by quarter notes, with accents and a dynamic marking of *mp*. The third and fourth staves are treble clef staves with rhythmic patterns. The fifth and sixth staves are bass clef staves with rhythmic patterns. The score includes dynamic markings such as *mp* and *8vb* (8va below).



15

The musical score is divided into two systems. The first system (measures 15-16) shows a grand staff with a treble clef and a bass clef. The treble clef part has a whole rest in measure 15 and a half note in measure 16. The bass clef part has a whole rest in measure 15 and a complex rhythmic pattern of sixteenth notes in measure 16. The second system (measures 17-18) continues the complex rhythmic patterns in both the grand staff and the separate bass line. The grand staff has a treble clef and a bass clef. The treble clef part has a whole rest in measure 17 and a complex rhythmic pattern of sixteenth notes in measure 18. The bass clef part has a complex rhythmic pattern of sixteenth notes in measure 17 and a whole rest in measure 18. The separate bass line has a complex rhythmic pattern of sixteenth notes in measure 17 and a complex rhythmic pattern of sixteenth notes in measure 18.



19

Musical score for page 19, measures 19-21. The score is arranged in two systems. The first system contains a grand staff (treble and bass clefs) and two bass clef staves. The second system contains two treble clef staves and two bass clef staves. The music is in 3/4 time with a key signature of one sharp (F#). The first system shows a piano introduction with a bass line of eighth notes and a second bass staff with a triplet of eighth notes. The second system shows a more active bass line with sixteenth-note triplets.

Sincronía. Movimiento no.2: 'Estado físico activo ó Vivace / Presto'

12 / 20

22

The musical score is divided into two systems. The first system consists of two staves: a grand staff (treble and bass clefs) and a bass staff. The grand staff contains whole rests in both staves. The bass staff contains a rhythmic pattern of eighth notes with stems pointing up, starting with a sharp sign. The second system also consists of two staves: a grand staff and a bass staff. The grand staff contains whole rests. The bass staff contains a rhythmic pattern of eighth notes with stems pointing up, starting with a sharp sign. The first measure of the second system in the bass staff has a sharp sign and an '8vb' marking. The second measure of the second system in the bass staff has a sharp sign and an '8vb' marking. The third system consists of two staves: a grand staff and a bass staff. The grand staff contains whole rests. The bass staff contains a rhythmic pattern of eighth notes with stems pointing up, starting with a sharp sign. The first measure of the third system in the bass staff has a sharp sign. The second measure of the third system in the bass staff has a sharp sign. The third measure of the third system in the bass staff has a sharp sign. The fourth measure of the third system in the bass staff has a sharp sign. The fifth measure of the third system in the bass staff has a sharp sign. The sixth measure of the third system in the bass staff has a sharp sign. The seventh measure of the third system in the bass staff has a sharp sign. The eighth measure of the third system in the bass staff has a sharp sign. The ninth measure of the third system in the bass staff has a sharp sign. The tenth measure of the third system in the bass staff has a sharp sign. The eleventh measure of the third system in the bass staff has a sharp sign. The twelfth measure of the third system in the bass staff has a sharp sign. The thirteenth measure of the third system in the bass staff has a sharp sign. The fourteenth measure of the third system in the bass staff has a sharp sign. The fifteenth measure of the third system in the bass staff has a sharp sign. The sixteenth measure of the third system in the bass staff has a sharp sign. The seventeenth measure of the third system in the bass staff has a sharp sign. The eighteenth measure of the third system in the bass staff has a sharp sign. The nineteenth measure of the third system in the bass staff has a sharp sign. The twentieth measure of the third system in the bass staff has a sharp sign.

24

The musical score is written for five systems of staves. The first system consists of two treble clef staves, both containing whole rests. The second system consists of two bass clef staves. The upper staff contains eighth notes with slurs and accents, starting with a sharp sign. The lower staff contains eighth notes with slurs and accents, including an 8va marking. The third system consists of two treble clef staves, both containing whole rests. The fourth system consists of two bass clef staves, both containing whole rests. The fifth system consists of two bass clef staves. The upper staff contains eighth notes with slurs and accents, starting with a sharp sign. The lower staff contains eighth notes with slurs and accents.

26

The musical score is divided into two systems. The first system consists of two staves for the upper part (treble clef) and two staves for the lower part (bass clef). The second system also consists of two staves for the upper part and two staves for the lower part. The lower part of both systems contains complex rhythmic patterns, including eighth and sixteenth notes, and rests. The upper part of both systems is mostly empty, with some rests and a few notes. The score is in a key with one sharp (F#) and a time signature of 8/8.

28

The musical score for page 28, measures 28-29, is presented in a system of seven staves. The first two staves are grouped by a brace on the left, representing the right hand of a piano. The top staff is a treble clef with a piano (p) dynamic marking. The second staff is a treble clef with a simple melodic line. The next two staves are grouped by a brace on the left, representing the left hand. The third staff is a bass clef with a complex rhythmic accompaniment of chords and eighth notes. The fourth staff is a bass clef with a similar complex rhythmic accompaniment. The fifth staff is a treble clef with a melodic line that begins in measure 29. The sixth staff is a treble clef with a simple melodic line. The seventh staff is a bass clef with a complex rhythmic accompaniment. The score is divided into two measures by a vertical bar line. The key signature has one sharp (F#) and the time signature is 3/4.

30

8vb



32

The musical score is written for piano and consists of six systems of staves. The first system has two staves for the right hand and two for the left hand. The second system has two staves for the right hand and two for the left hand. The third system has one staff for the right hand and three for the left hand, with a 'Ped.' marking. The fourth system has two staves for the right hand and two for the left hand. The fifth system has one staff for the right hand and three for the left hand. The sixth system has one staff for the right hand and three for the left hand. The music is in 3/4 time and features a complex rhythmic pattern with many slurs and accents. The key signature has one sharp (F#).

34

The musical score is arranged in two systems. The first system consists of two grand staves (treble and bass clefs) for the right and left hands. The right hand has a whole rest in the first measure, followed by a half rest in the second measure. The left hand has a quarter note with an accent (>) in the first measure, followed by a quarter note with an accent (>) in the second measure. The second system consists of two grand staves. The right hand has a whole rest in the first measure, followed by a series of eighth notes with accents (>) in the second measure. The left hand has a series of eighth notes with accents (>) in the first measure, followed by a series of eighth notes with accents (>) in the second measure. The score includes various musical notations such as notes, rests, and dynamic markings.

36

Ped.

37

The musical score consists of two systems of staves. The first system (measures 37-38) includes a grand staff with two treble clefs and two bass clefs. The second system (measures 39-40) includes a grand staff with one treble clef and three bass clefs. The music is characterized by a driving eighth-note pattern in the bass clefs and rests in the treble clefs. A dynamic marking of  $8^{va}$  is present in the second system.

# Sincronía

## Movimiento no.1-B: 'Estado físico en calma ó Andante'

Estado rítmico cardíaco en calma de 88 especies animales

♩ - 60

Lorena Mal

Emilio Hinojosa Carrión

[2013-2014]

The musical score is written for a piano and consists of several staves. The key signature is one sharp (F#) and the time signature is 4/4. The tempo is marked as 'Andante' with a quarter note equal to 60 beats per minute. The score is divided into two systems. The first system includes a grand staff (treble and bass clefs) and two additional staves. The second system includes a grand staff and two additional staves. Dynamics include *mf* (mezzo-forte), *p* (piano), and *mp* (mezzo-piano). The score features a variety of rhythmic patterns, including eighth notes, sixteenth notes, and rests.

Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante'

The musical score is arranged in two systems. The first system consists of a grand staff (treble and bass clefs) and two bass clef staves. The grand staff begins with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *f*. It features three chords marked with a 'V' and a '3' above them, followed by a measure with a fermata. The two bass clef staves below contain rhythmic accompaniment: the upper one has a dense pattern of sixteenth notes, and the lower one has a pattern of eighth notes. The second system also consists of a grand staff and two bass clef staves. The grand staff begins with a treble clef and contains a long melodic line with a slur and a fermata, followed by a series of eighth notes. The two bass clef staves below contain rhythmic accompaniment with eighth notes and a final chord marked with a 'V'.



Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante'

4 / 33

The musical score is arranged in a grand staff format with multiple systems. The first system (measures 7-8) features a treble clef with a piano part marked *mf*. The right hand plays chords with an 8va marking, while the left hand plays a rhythmic pattern of eighth notes. The second system (measures 9-10) continues the piano part with a similar rhythmic pattern in the left hand and a melodic line in the right hand. The third system (measures 11-12) shows a more complex texture with multiple staves, including a bass clef part with a melodic line and a piano part marked *mf*. The fourth system (measures 13-14) features a treble clef with a melodic line and a piano part marked *mf*. The fifth system (measures 15-16) shows a bass clef with a melodic line and a piano part marked *mf*. The score includes various musical notations such as notes, rests, and dynamic markings.



9

8va

(8) 7

8va

The image shows a musical score for a piece titled 'Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante''. The score is written for piano and is divided into two systems. The first system consists of three staves: a grand staff (treble and bass clefs) and a separate bass staff. The second system also consists of three staves: a grand staff and a separate bass staff. The music is in a key with one sharp (F#) and a 3/4 time signature. The tempo is marked 'Andante'. The score includes various musical notations such as notes, rests, slurs, and dynamic markings. A '9' is written at the beginning of the first system. A '8va' marking with a dashed line indicates an octave shift in the first system. A '(8) 7' marking is present in the second system. Another '8va' marking is present in the second system. The score is for a piece by Sincronía, Movement No. 1-B, 'Estado físico en calma ó Andante', page 5 of 33.

11

The musical score is arranged in a system of five staves. The top two staves are grouped by a brace on the left. The first staff is a treble clef with a whole note chord at the beginning of the first measure, which is sustained across the second measure. The second staff is a treble clef with a rhythmic pattern of eighth notes and sixteenth notes, including a sharp sign on the first note. The third and fourth staves are bass clefs; the third staff is mostly empty with a few notes in the second measure, and the fourth staff has a few notes in the second measure. The fifth staff is a treble clef with a whole note chord at the beginning of the first measure, which is sustained across the second measure. A circled number '8' is written above the first measure of the fifth staff. A dashed line labeled '8va' spans the second measure of the fifth staff. The bottom two staves are bass clefs; the sixth staff has a few notes in the second measure, and the seventh staff has a rhythmic pattern of eighth notes and sixteenth notes in the second measure.

13

mf

8va

15

*mf*

*mf*

(8) 7

17

8<sup>va</sup>

8<sup>va</sup>

8va

19

The musical score is arranged in a system of ten staves. The top two staves are grouped by a brace on the left and are marked with a dashed line and '8va' above them. The first staff is in treble clef, and the second is in bass clef. The third staff is in bass clef. The fourth staff is in treble clef. The fifth staff is in treble clef. The sixth staff is in bass clef. The seventh staff is in bass clef. The eighth staff is in bass clef. The ninth staff is in bass clef. The tenth staff is in bass clef. The score consists of three measures. The first measure features a treble clef staff with a whole note chord and a bass clef staff with a rhythmic pattern of eighth notes. The second measure features a treble clef staff with a whole note chord and a bass clef staff with a complex rhythmic pattern of sixteenth notes. The third measure features a treble clef staff with a whole note chord and a bass clef staff with a rhythmic pattern of eighth notes. The score includes various musical notations such as clefs, notes, rests, and dynamic markings like 'v'.

22

The musical score is written for piano and consists of two systems of staves. The first system includes a grand staff (treble and bass clefs) and two additional bass staves. The second system includes a grand staff and two additional bass staves. The music is in 3/4 time and features a complex rhythmic pattern in the right hand and a more melodic line in the left hand. The piano part consists of a series of chords and eighth notes, while the right hand features a dense texture of sixteenth notes and eighth notes. The score is written for piano and includes a variety of musical notations such as slurs, accents, and dynamic markings.

25

The musical score is written for piano and voice. It begins at measure 25. The key signature is one sharp (F#), and the time signature is 3/4. The score is divided into three measures. The upper system consists of a vocal line and a piano line. The vocal line starts with a long note (half note) on a high pitch, followed by a rest. The piano line in the upper system features a triplet of eighth notes in the first measure, followed by a rest. The lower system consists of a piano line with a steady eighth-note bass line and a treble line with chords and arpeggios. The bass line starts with a quarter rest, followed by a series of eighth notes. The treble line starts with a quarter rest, followed by a series of chords and arpeggios. The score ends with a final chord in the piano line.



28

*mf*

31

The musical score is written for piano and consists of ten systems. The first system (measures 31-32) features a grand staff with a treble clef staff containing a whole rest and a sharp sign, and a bass clef staff containing a whole note chord. The second system (measures 33-34) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The third system (measures 35-36) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The fourth system (measures 37-38) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The fifth system (measures 39-40) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The sixth system (measures 41-42) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The seventh system (measures 43-44) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The eighth system (measures 45-46) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The ninth system (measures 47-48) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord. The tenth system (measures 49-50) features a treble clef staff with a whole note chord and a bass clef staff with a whole note chord.

Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante'

33

The musical score is presented in eight systems. The first system (measures 33-34) features a grand staff with treble and bass clefs. The second system (measures 35-36) consists of two bass clefs. The third system (measures 37-38) consists of two treble clefs. The fourth system (measures 39-40) consists of two bass clefs. The fifth system (measures 41-42) consists of two bass clefs. The sixth system (measures 43-44) consists of two bass clefs. The seventh system (measures 45-46) consists of two bass clefs. The eighth system (measures 47-48) consists of two bass clefs. The score includes various musical notations such as notes, rests, slurs, and dynamic markings.

35

*mf*

37

The musical score is presented in a grand staff format, consisting of a treble clef staff and a bass clef staff. The first system (measures 37-39) includes a dynamic marking of *mf*. The second system (measures 40-42) continues the melodic and harmonic development. The third system (measures 43-45) features a more active bass line. The fourth system (measures 46-48) shows a continuation of the melodic and harmonic themes. The fifth system (measures 49-51) concludes the page with a final melodic phrase and a sustained bass line.

40

The musical score consists of several systems of staves. The first system includes a grand staff with treble and bass clefs, and two additional staves below. The second system continues the notation with similar staff arrangements. The music is characterized by intricate rhythmic patterns, including sixteenth and thirty-second notes, and rests. The key signature has one sharp (F#).

43

The musical score is written for piano and consists of several systems. The first system (measures 43-45) features a right-hand melody with chords and eighth notes, and a left-hand bass line with chords. Dynamics are marked *mf*. The second system (measures 46-48) continues the right-hand melody and left-hand bass line. The third system (measures 49-51) includes an 8va marking above the right-hand staff, indicating an octave shift. The score concludes with a final measure (measure 52) in the bottom system.

46

*mf* *mf* *mf*

*8va*



48

8<sup>va</sup>

The musical score is presented in a system of staves. The top system consists of a grand staff with a treble clef and a bass clef. The treble clef part begins with a red '48' and a red '8<sup>va</sup>' marking. The bass clef part features a rhythmic pattern of eighth notes. The second system continues the grand staff, with the treble clef part showing a melodic line and the bass clef part showing a rhythmic accompaniment. The third system introduces a new instrument with a treble clef, featuring a melodic line with a long slur. The fourth system continues this instrument's part, showing a melodic line with a slur and a rhythmic accompaniment. The fifth system shows a bass clef part with a melodic line and a rhythmic accompaniment.

52

8va

55 (8)

The image displays a musical score for a piece titled 'Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante''. The score is presented on two systems of staves. The first system consists of a grand staff (treble and bass clefs) and two additional bass staves. The second system also consists of a grand staff and two additional bass staves. The music is written in a key signature of one sharp (F#) and a time signature of 3/4. The first system begins with a measure containing a whole note chord in the treble clef, followed by two measures of rests. The third measure of the first system features a melodic line in the treble clef with a slur over two notes, and a bass line with eighth notes. The second system begins with a measure containing a whole note chord in the treble clef, followed by two measures of rests. The third measure of the second system features a melodic line in the treble clef with a slur over two notes, and a bass line with eighth notes. The score is marked with a '55 (8)' at the beginning of the first system, indicating the measure number and a repeat sign. The page number '23 / 33' is located in the top right corner.

58

8<sup>va</sup>

The image displays a musical score for a piece titled "Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante'". The score is written for a piano and is divided into two systems. The first system begins at measure 58. The piano part consists of two staves: the upper staff is in treble clef and the lower staff is in bass clef. The upper staff features a melodic line with a key signature of one sharp (F#) and a tempo marking of "Andante". The lower staff provides a rhythmic accompaniment with eighth and sixteenth notes. The second system continues the piece, featuring a more complex melodic line in the upper staff, marked with an 8va (octave) sign, and a bass line in the lower staff. The score is presented in a clean, black-and-white format with standard musical notation.

61

8<sup>va</sup>

(8)

The image shows a musical score for a piece titled 'Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante''. The score is on page 25 of 33. It features a grand staff with two treble clefs and two bass clefs. The first system (measures 61-62) includes a treble clef staff with a key signature of one sharp (F#) and a common time signature. The right hand plays chords, while the left hand has a dense, rhythmic pattern of sixteenth notes. A dashed line labeled '8<sup>va</sup>' indicates an octave transposition for the right hand in the second measure. The second system (measures 63-64) continues the piece, with the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. A dashed line labeled '(8)' indicates an octave transposition for the right hand in the second measure. The third system (measures 65-66) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. The fourth system (measures 67-68) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. The fifth system (measures 69-70) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. The sixth system (measures 71-72) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. The seventh system (measures 73-74) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. The eighth system (measures 75-76) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. The ninth system (measures 77-78) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes. The tenth system (measures 79-80) shows the right hand playing a melodic line of eighth notes and the left hand playing a rhythmic pattern of eighth notes.

The image displays a musical score for a piece titled "Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante'". The score is written for piano and consists of two systems of staves. The first system begins at measure 63, indicated by a circled number. The upper staff features a melodic line with eighth-note patterns, marked with a "8va" (octave) sign and a dashed line above it. The lower staff contains a complex accompaniment with dense sixteenth-note textures. The second system starts with a circled measure number "(8)" above the first staff, which continues the melodic line. The lower staves of the second system show a bass line with sparse notes and rests, and a grand staff with sustained chords in the bass register.

65 *8va*

*f*

This musical score page contains two systems of music. The first system (measures 65-66) features a piano accompaniment with a treble clef staff containing chords and a bass clef staff with a simple bass line. A dashed line labeled '8va' spans the first measure of the treble staff. The second system (measures 67-70) includes a vocal line in the treble clef with a melodic line and lyrics, and a piano accompaniment in the bass clef with a more complex bass line. A dynamic marking of *f* is present at the beginning of the second system.

67

8va

*f*



70

The musical score for 'Estado físico en calma ó Andante' begins at measure 70. It is written for piano and consists of several systems of staves. The first system is a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The upper staff contains a melodic line with a long note in the first measure, followed by a rest, and then a dense, rapid sixteenth-note passage. The lower staff contains a bass line with rests and notes. The second system continues the grand staff with a bass clef on the upper staff and a bass clef on the lower staff. The upper staff features a rhythmic pattern of eighth and sixteenth notes, while the lower staff has a more complex rhythmic pattern with many sixteenth notes and rests. The third system consists of two treble clefs on the upper staves and two bass clefs on the lower staves. The upper staves contain chords, with '8va' markings indicating octave transposition. The lower staves contain a complex rhythmic pattern with many sixteenth notes and rests. The fourth system continues the two-treble and two-bass staff arrangement. The upper staves have a rhythmic pattern of eighth and sixteenth notes, while the lower staves have a more complex rhythmic pattern with many sixteenth notes and rests. The score concludes with a final chord in the lower staves.

Sincronía. Movimiento no.1-B: 'Estado físico en calma ó Andante'

30 / 33

8va-----

73

The musical score is arranged in two systems. The first system consists of a grand staff (treble and bass clefs) and a separate bass line. The grand staff features a melodic line with a long slur and a piano line with a dense sixteenth-note texture. The second system includes a grand staff with a treble clef and a bass line. The treble clef part contains chords with accents and dynamic markings, with an 8va marking above. The bass line continues the melodic and harmonic development.

(8)-----]

77

Musical score for 'Estado físico en calma ó Andante' starting at measure 77. The score is arranged in two systems. The first system contains two staves: a grand staff (treble and bass clefs) and a bass staff. The second system contains four staves: two grand staves and two bass staves. The music features a variety of rhythmic patterns, including eighth and sixteenth notes, and rests. There are dynamic markings such as 'p' and 'v', and a 'Sua' marking with a dashed line above it in the second system. The key signature has one sharp (F#).

81 (8)

The musical score is divided into four systems of staves. The first system (measures 81-82) shows a piano introduction with a treble clef staff and a grand staff (treble and bass clefs). The second system (measures 83-84) continues the piano introduction with a bass clef staff and a grand staff. The third system (measures 85-86) features a vocal line in the treble clef staff and a grand staff. The fourth system (measures 87-88) features a vocal line in the treble clef staff and a grand staff. The score includes various musical notations such as rests, notes, and dynamic markings.

83

Musical score for page 83, measures 83-86. The score is arranged in two systems. The first system contains measures 83 and 84, and the second system contains measures 85 and 86. Each system has four staves: a grand staff (treble and bass clefs) and two bass clef staves. The music is in a key with one sharp (F#) and a 3/4 time signature. The tempo is marked 'Andante'. The score features various rhythmic patterns, including eighth and sixteenth notes, rests, and a final cadence in measure 86.

## Sincronía

### Mapa de datos para movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

Estado rítmico cardiaco de hibernación y sueño de 33 especies animales (clave de Sol)

♩ - 60  
8<sup>va</sup>

88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65

64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40

- 88: Siphonaptera [Pulga, do 9] | s/d  
 87: Cimex lectularius [Chinche, **si 8**] | **S: 3/4**  
 86: Lepidoptera [Mariposa, la#8] | s/d  
 85: Anisoptera [Libelula, la 8] | s/d  
 84: Hylotrupes bajulus [Polilla, sol#8] | s/d  
 83: Caelifera [Saltamontes, sol 8] | s/d  
 82: Pycnogonida [Araña de mar, fa#8] | s/d  
 81: Achaeareanea tepidariorum [Araña, fa 8] | s/d  
 80: Helix aspersa [Caracol, mi 8] | s/d  
 79: Mesodesma mactroides [Almeja, re#8] | s/d  
 78: Mytilus galloprovincialis [Mejillón, re 8] | s/d  
 77: Podarcis hispanicus [Lagartija, do#8] | s/d  
 76: Caridea [Camarón, do 8] | s/d  
 75: Palinurus elephas [Langosta, si 7] | s/d  
 74: Carcinus maenas [Cangrejo, la#7] | s/d  
 73: Salamandra [Salamandra, la 7] | s/d  
 72: Trochilinae [Colibrí, **sol#7**] | **S: 1/16 1/32**  
 71: Rattus norvegicus [Rata, **sol 7**] | **S: c**  
 70: Asteroidea [Estrella de mar, fa#7] | s/d  
 69: Passer domesticus [Gorrión, **fa 7**] | **S: c**  
 68: Pelophylax perezi [Rana, mi 7] | s/d  
 67: Bufo bufo [Sapo, **re #7**] | **S: 12/4**  
 66: Serpentes [Serpiente, re 7] | s/d  
 65: Didelphimorphia [Zarigüeya, **do #7**] | **S: 1/16 1/32 1/64**  
 64: Suncus murinus [Musaraña, **do 7**] | **S: c**  
 63: Corynorhinus townsendii [Murciélago, **si 6**] | **H: 2/4 1/6 1/32, S: c**  
 62: Columba livia [Paloma, la#6] | s/d  
 61: Iguanidae [Iguana, la 6] | s/d

- 60: Mustela putorius furo [Hurón, sol#6] | s/d  
 59: Erinaceinae [Erizo, **sol 6**] | **H: 12/4, S: 1/16 1/32 1/64**  
 58: Thunnus [Atún, fa#6] | s/d  
 57: Oryctolagus cuniculus [Conejo, **fa 6**] | **S: 1/8**  
 56: Nothura maculosa [Perdiz, mi 6] | s/d  
 55: Melospiza undulatus [Perico, re#6] | s/d  
 54: Gallus gallus domesticus [Gallina, re 6] | s/d  
 53: Anas platyrhynchos domesticus [Pato, **do#6**] | **S: 1/8**  
 52: Anser anser [Ganso, do 6] | s/d  
 51: Falco peregrinus [Halcón, si 5] | s/d  
 50: Accipitridae [Águila, la#5] | s/d  
 49: Grus grus [Cisne, la 5] | s/d  
 48: Felis silvestris catus [Gato, sol#5] | s/d  
 47: Erethizon dorsatum [Puercoespín, **sol 5**] | **H: 12/4**  
 46: Dasypodidae [Armadillo, **fa#5**] | **S: 1/8**  
 45: Talpa europaea [Topo, **fa 5**] | **S: 1/4**  
 44: Marmota marmota [Marmota, **mi 5**] | **H: 15/4**  
 43: Strigidae [Buho, re #5] | s/d  
 42: Ornithorhynchus anatinus [Ornitorrinco, re 5] | s/d  
 41: Pelecanus onocrotalus [Pelicano, do #5] | s/d  
 40: Testudines [Tortuga, do 5] | s/d

H: Hibernación  
 S: Sueño

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.

## Sincronía

### Mapa de datos para movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

Estado rítmico cardíaco de hibernación y sueño de 33 especies animales (clave de Fa)

♩ - 60

- 39: Apteryx australis [Kiwi, si 4] | s/d  
 38: Phascolarctos cinereus [Koala, **la#4**] | S: 1/8 1/16  
 37: Octopus vulgaris [Pulpo, **la 4**] | S: 6/4  
 36: Vulpini [Zorro, **sol#4**] | S: 1/8 1/16  
 35: Pan troglodytes [Chimpance, sol 4] | s/d  
 34: Canis latrans [Coyote, fa#4] | s/d  
 33: Canis lupus familiaris [Perro, **fa 4**] | S: 1/4  
 32: Canis lupus [Lobo, **mi 4**] | S: 1/4 1/32  
 31: Ovis orientalis aries [Oveja, re#4] | s/d  
 30: Capra aegagrus hircus [Cabra, re 4] | s/d  
 29: Spheniscidae [Pingüino, do#4] | s/d  
 28: Homo sapiens [Humano, **do 4**] | S: 1/4  
 27: Sus scrofa domestica [Cerdo, **si 3**] | S: 1/4  
 26: Equus africanus-ferus [Mula, la#3] | s/d  
 25: Lacertilia [Lagarto, **la 3**] | H: 60/4  
 24: Cervus elaphus [Venado, **sol#3**] | S: 1/8 1/16 1/32  
 23: Antilope cervicapra [Antílope, sol 3] | s/d  
 22: Macropus giganteus [Cangüro, **fa#3**] | S: 1/4 1/8  
 21: Panthera leo [León, fa 3] | s/d  
 20: Panthera tigris [Tigre, mi 3] | s/d  
 19: Rhea americana [Avestruz, re#3] | s/d  
 18: Lama glama [Llama, re 3] | s/d  
 17: Phoca vitulina [Foca, **do#3**] | S: 1/4 1/32  
 16: Equus ferus caballus [Caballo, **do 3**] | S: 2/4

- 15: Camelus bactrianus [Camello, si 2] | s/d  
 14: Odobenus rosmarus [Morsa, **la#2**] | S: 1/4 1/8  
 13: Gorilla [Gorila, la 2] | s/d  
 12: Tursiops truncatus [Delfín, sol#2] | s/d  
 11: Bos primigenius taurus [Vaca, **sol 2**] | S: 1/4 1/8  
 10: Bos primigenius taurus [Toro, fa#2] | s/d  
 9: Bos primigenius taurus [Buey, fa 2] | s/d  
 8: Ursus arctos arctos [Oso, **mi 2**] | H: 7/4 1/8, S: 1/4 1/8  
 7: Otaria flavescens [Lobo Marino, **re#2**] | S: 1/8 1/32  
 6: Bos primigenius indicus [Cebuino, re 2] | s/d  
 5: Bison bison [Búfalo, do#2] | s/d  
 4: Selachimorph [Tiburón, do 2] | s/d  
 3: Giraffa camelopardalis [Girafa, si 1] | s/d  
 2: Loxodonta africana [Elefante, **la#1**] | S: 1/4 1/8  
 1: Balaena mysticetus [Ballena, **la 1**] | S: 3/4

H: Hibernación  
 S: Sueño

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.

# Sincronía

## Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

Estado rítmico cardíaco de hibernación y sueño de 33 especies animales (clave de Sol)

♩ - 60

Lorena Mal

Emilio Hinojosa Carrión

[2013-2014]

The musical score is written in 4/4 time and consists of several systems of staves. The first system includes a grand staff with a treble clef and a bass clef. The treble clef part begins with a dynamic marking of *mf* and contains notes with slurs and accents. The bass clef part contains notes with slurs and accents. The second system includes a grand staff with a treble clef and a bass clef. The treble clef part begins with a dynamic marking of *p* and contains notes with slurs and accents. The bass clef part contains notes with slurs and accents. The third system includes a grand staff with a treble clef and a bass clef. The treble clef part contains notes with slurs and accents. The bass clef part contains notes with slurs and accents.



Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

5

The musical score is written for piano and consists of five systems of staves. The first system includes a grand staff (treble and bass clefs) and a single bass clef staff. The second system includes a grand staff and a single bass clef staff. The third system includes a grand staff and a single bass clef staff. The fourth system includes a grand staff and a single bass clef staff. The fifth system includes a grand staff and a single bass clef staff. The score is marked with a piano dynamic (p) and includes a mezzo-forte (mf) dynamic marking in the final measure of the fifth system. The tempo is indicated as Larghissimo / Tranquillo.

*mf*  
*Ped.*

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

9

The musical score is divided into two systems. The first system consists of a grand staff (treble and bass clefs) and two additional bass staves. The grand staff begins with a treble clef and a key signature of one sharp (F#). The first two measures of the grand staff are empty. In the third measure, the treble clef part begins with a piano (*p*) dynamic, playing a series of eighth notes: F#4, G4, A4, B4, C5, B4, A4, G4, F#4. The bass clef part has a whole rest in the first two measures, followed by a half note F#3 in the third measure. The second system also consists of a grand staff and two additional bass staves. The grand staff begins with a treble clef. The first two measures of the grand staff are empty. In the third measure, the treble clef part begins with a mezzo-forte (*mf*) dynamic, playing a series of eighth notes: G4, A4, B4, C5, B4, A4, G4, F#4. The bass clef part has a whole rest in the first two measures, followed by a half note F#3 in the third measure. The second system continues with a grand staff and two additional bass staves, all of which are empty.

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

13

The image shows a musical score for piano and strings, starting at measure 13. The piano part is written in treble clef with a key signature of one sharp (F#). The first system (measures 13-15) features a complex rhythmic pattern in the right hand, including sixteenth and thirty-second notes, and a 'Ped.' (pedal) marking. The second system (measures 16-18) continues the piano part with a 'Ped.' marking and features a melodic line in the right hand. The string parts are written in bass clef and consist of two staves. The first system shows mostly rests, with some rhythmic markings in the second system. The second system shows rests in the first two measures, followed by a melodic line in the third measure.

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

16

8va

*mp*

*mf*

*mf*

The musical score is presented in a system of staves. The top system consists of a grand staff with a treble clef and a bass clef. The treble clef staff begins with a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. It contains a melodic line starting at measure 16, marked with a piano dynamic of *mp*. A dashed line above the staff is labeled '8va', indicating an octave transposition. The bass clef staff in this system contains a few notes in the first measure and rests thereafter. The second system consists of two bass clef staves. The upper bass clef staff contains a melodic line starting in the second measure, marked with a mezzo-forte dynamic of *mf*. The lower bass clef staff contains a few notes in the first measure and rests thereafter. The third system consists of a treble clef staff and a bass clef staff. The treble clef staff contains a melodic line with a mezzo-forte dynamic of *mf*. The bass clef staff contains rests. The fourth system consists of two empty bass clef staves.



Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

7 / 27

8<sup>va</sup>

22

*f*

*mf*

*Ped.*

8<sup>vb</sup>

The image shows a page of musical notation for a piece titled 'Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo''. The page number is 7 of 27. The score is arranged in a grand staff format with multiple systems. The first system includes a treble clef staff with a dashed line labeled '8<sup>va</sup>' above it, and a bass clef staff. The second system includes a bass clef staff, a grand staff (treble and bass clefs), and a dashed line labeled '8<sup>vb</sup>' below it. The third system includes a treble clef staff and a grand staff. The fourth system includes a bass clef staff and a grand staff. The notation features various musical elements such as notes, rests, slurs, and dynamic markings like *f* (forte) and *mf* (mezzo-forte). There are also performance instructions like *Ped.* (pedal) and *mf*. The key signature has one sharp (F#), and the time signature is not explicitly shown but appears to be 3/4 or 4/4 based on the note values.

Musical score for 'Estado físico en hibernación y sueño' (Larghissimo / Tranquillo). The score is written for piano and includes a grand staff (treble and bass clefs) and two additional staves. The first system (measures 25-28) features a piano introduction with a dynamic marking of *mf*. The second system (measures 29-32) includes a section marked *Ped.* (Pedal) and *8<sup>va</sup>* (8va). The score is marked with a measure rest of 8 measures at the beginning of the first system and another at the end of the second system. The tempo is indicated as *Larghissimo / Tranquillo*.

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

9 / 27

29

8va

Ped.

Ped.

Ped.



Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

10 / 27

33

Two staves of piano music for measures 33-36. Both staves are empty, indicating a whole rest for the piano throughout this section.

Two staves of music for measures 33-36. The upper staff is for Bassoon and the lower for Cello/Double Bass. Both parts are mostly whole rests, with some activity in measure 36. The Bassoon part in measure 36 includes a dynamic marking of *mf* and a Pedal marking. The Cello/Double Bass part in measure 36 includes a Pedal marking.

Two staves of piano music for measures 37-40. Both staves are empty, indicating a whole rest for the piano throughout this section.

Two staves of music for measures 37-40. The upper staff is for Bassoon and the lower for Cello/Double Bass. Both parts have active notation throughout the section. The Bassoon part in measure 40 includes a Pedal marking. The Cello/Double Bass part in measure 40 includes a Pedal marking.

Two staves of piano music for measures 37-40. The upper staff is empty. The lower staff contains active notation for measures 37-40, including a dynamic marking of *f* and a Pedal marking. A dashed line with *8<sup>vb</sup>* is positioned below the staff.

37

(8)-----Red-----

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

41

pp

mp  
Ped.

f  
Ped.

mf

(8)

45

The first system of music consists of two staves. The upper staff is in treble clef and contains rests in measures 45 and 46, followed by a quarter note G4 with a sharp sign in measure 47, and a quarter rest in measure 48. The lower staff is in bass clef and contains rests in all four measures.

The second system of music consists of two staves. The upper staff is in bass clef and contains a complex melodic line with slurs and ties. The lower staff is in bass clef and contains a simple accompaniment of quarter notes. A 'Ped.' marking is present in measure 51.

The third system of music consists of two staves. Both the upper and lower staves contain rests in all four measures.

The fourth system of music consists of two staves. The upper staff is in bass clef and contains a melodic line with slurs and ties. The lower staff is in bass clef and contains a simple accompaniment of quarter notes. A 'Ped.' marking is present in measure 58.

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

49

Musical notation for measures 49-52, top system. It consists of two staves (treble and bass clefs) with rests in measure 49. In measure 50, the treble staff has a quarter note G4, followed by eighth notes A4 and B4, and a quarter note C5. Measure 51 has a quarter note G4. Measure 52 has a whole rest.

Musical notation for measures 49-52, middle system. It consists of two staves (bass clefs). The upper staff has a complex rhythmic pattern of eighth and sixteenth notes with accidentals. The lower staff has a simpler pattern of quarter notes. A 'Ped.' marking is present in measure 52. An '8vb' marking with a dashed line is at the bottom.

Musical notation for measures 49-52, bottom system. It consists of two staves (treble clefs) with rests in all measures.

Musical notation for measures 49-52, bottom system. It consists of two staves (bass clefs). The upper staff has a pattern of quarter notes with accidentals and 'Ped.' markings. The lower staff has a pattern of quarter notes.



53

Musical notation for measures 53-56, top system. It consists of two staves. The upper staff is in treble clef and contains a melodic line with eighth notes and rests. The lower staff is in bass clef and contains a bass line with rests and a few notes.

Musical notation for measures 53-56, middle system. It consists of two staves. The upper staff is in bass clef and contains a complex melodic line with many notes and slurs. The lower staff is in bass clef and contains a bass line with chords and eighth notes. A circled '8' is written below the first measure of the lower staff, with a dashed line extending to the right. The word 'Ped.' is written at the end of the upper staff.

Musical notation for measures 53-56, bottom system. It consists of two staves. The upper staff is in treble clef and contains a melodic line with rests and a few notes. The lower staff is in bass clef and contains a bass line with rests and a few notes.

Musical notation for measures 53-56, bottom system. It consists of two staves. The upper staff is in bass clef and contains a melodic line with notes and slurs. The lower staff is in bass clef and contains a bass line with notes and rests.

57

The musical score for page 16 of 27, starting at measure 57, is arranged in four systems. The first system consists of two staves (treble and bass clef) with rests. The second system consists of two bass clef staves; the upper one contains a melodic line with slurs and accents, and the lower one contains a bass line with a 'Ped.' marking. The third system consists of two treble clef staves with rests. The fourth system consists of two bass clef staves with a rhythmic accompaniment pattern.

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

61

8va

Ped.



The image displays a musical score for a piece titled 'Estado físico en hibernación y sueño' (Physical state in hibernation and sleep), which is the third movement of 'Sincronía'. The score is marked 'Larghissimo / Tranquillo'. It consists of several staves:

- Top Staff (Right Hand):** Features a melodic line with a circled '8' above it, indicating an eighth-note pattern. The notes are mostly tied across measures, with some slurs. The key signature has one sharp (F#).
- Second Staff (Right Hand):** Contains a dense, rhythmic accompaniment of eighth notes, often beamed in groups of four or six. It includes rests and slurs.
- Third Staff (Left Hand):** Shows a sparse accompaniment with rests and occasional notes, including a circled '8' below it.
- Fourth Staff (Left Hand):** Contains a melodic line with slurs and ties, marked with 'P<sub>ed.</sub>' (pedal) below it.
- Fifth and Sixth Staves:** These staves are currently empty, suggesting they are for other instruments or parts of the score.

The image displays a musical score for a piece titled 'Estado físico en hibernación y sueño' (Physical state in hibernation and sleep), which is the third movement of 'Sincronía'. The score is marked 'Larghissimo / Tranquillo'. It consists of several staves for different instruments, including a grand piano (8va), a double bass (8va), and a piano (p). The score is divided into measures, with some measures containing rests. The notation includes various musical symbols such as notes, rests, and dynamic markings. The score is presented in a standard musical notation format, with a key signature of one sharp (F#) and a time signature of 3/4. The page number is 19 out of 27.

Musical score for 'Estado físico en hibernación y sueño' (Larghissimo / Tranquillo). The score is written for piano and includes a first ending bracketed with a circled 8. The notation is arranged in systems of staves. The first system consists of a grand staff (treble and bass clefs) with a first ending bracketed with a circled 8. The second system consists of two bass clef staves. The third system consists of two treble clef staves. The fourth system consists of two bass clef staves, with the word 'Ped.' written below the first staff. The score is written in a key signature of one sharp (F#) and a common time signature (C).

(8)

73

The musical score is arranged in a grand staff format with multiple systems. The first system consists of two staves: a treble clef staff and a bass clef staff. The treble staff begins with a measure containing a whole note chord, followed by a measure with a whole note chord and a fermata. The bass staff contains a series of eighth notes with slurs and accents. The second system continues the piece with similar textures. The third system features a treble staff with a sequence of chords and a bass staff with a melodic line. The fourth system has a treble staff with a dense texture of chords and a bass staff with a melodic line. The fifth system continues the melodic and harmonic development in both staves. The sixth system shows further melodic movement in the bass staff. The seventh system concludes the page with a final melodic phrase in the bass staff.

Musical score for 'Estado físico en hibernación y sueño' (Larghissimo / Tranquillo). The score is written for piano and includes the following parts:

- Right Hand (RH):** Features a melodic line with long, sweeping phrases and a steady accompaniment of chords. A circled '8' is placed above the first measure of the RH staff.
- Left Hand (LH):** Features a melodic line with long, sweeping phrases and a steady accompaniment of chords. A circled '8' is placed above the first measure of the LH staff.
- 8vb:** An octave transposition marking is present below the LH staff.
- Ped.** A pedal point marking is present below the LH staff.

The score is divided into two systems, each containing two staves. The first system includes a circled '8' above the first measure of both the RH and LH staves. The second system includes a circled '8' above the first measure of both the RH and LH staves. The score is written in a key signature of one sharp (F#) and a time signature of 4/4.

77

(8)

The image displays a musical score for a piece titled 'Estado físico en hibernación y sueño' (Physical state in hibernation and sleep), which is the third movement of 'Sincronía'. The score is marked 'Larghissimo / Tranquillo'. It consists of two systems of staves. The first system includes a grand staff with a treble clef and a bass clef, and two additional bass staves. The second system includes a grand staff with a treble clef and a bass clef, and two additional bass staves. The music is written in a key signature of one sharp (F#) and a time signature of 3/4. The first system shows a melodic line in the treble clef with a slur over the first two measures and a fermata over the third measure. The bass clef part features a series of eighth notes with slurs. The second system shows a complex texture with multiple voices, including a treble clef part with a series of eighth notes and a bass clef part with a series of eighth notes. The score is marked with a rehearsal mark (8) at the beginning of the first system.

79

79

*mf*

82

The image shows a musical score for piano and strings, starting at measure 82. The piano part is written in treble clef and consists of three measures. The first two measures are mostly rests, with some light articulation. The third measure features a melodic line with a sharp sign and a fermata. The string part is written in two systems of two staves each (treble and bass clefs). The first system shows a rhythmic pattern of eighth notes with a sharp sign. The second system shows a similar pattern with a sharp sign. The third system shows a similar pattern with a sharp sign. The piano part is written in treble clef and consists of three measures. The first two measures are mostly rests, with some light articulation. The third measure features a melodic line with a sharp sign and a fermata. The string part is written in two systems of two staves each (treble and bass clefs). The first system shows a rhythmic pattern of eighth notes with a sharp sign. The second system shows a similar pattern with a sharp sign. The third system shows a similar pattern with a sharp sign.



85

The musical score for page 85, measures 85-86, is presented in two systems. Each system consists of two staves. The upper staff of each system is a grand staff, combining a treble clef and a bass clef. The lower staff of each system consists of two empty bass clef staves. In the first system, measures 85 and 86 show a treble clef staff with a whole rest in measure 85 and a quarter rest in measure 86, followed by a quarter note G4, a quarter note A4, and a quarter note B4 in measure 86. The bass clef staff of the first system has whole rests in both measures. The second system shows a treble clef staff with a half note chord (G4, B4) in measure 85, a quarter rest in measure 86, a half note chord (G4, B4) in measure 87, a quarter rest in measure 88, and a half note chord (G4, B4) in measure 89. The bass clef staff of the second system has whole rests in both measures.

Sincronía. Movimiento no.3: 'Estado físico en hibernación y sueño ó Larghissimo / Tranquillo'

27 / 27

87

The image displays a musical score for three systems. The first system begins at measure 87, marked with a treble clef and a key signature of one sharp (F#). The melodic line in the treble clef staff starts with a quarter note G4, followed by a quarter note A4, and a quarter note B4. The second system continues with a treble clef staff featuring a complex chordal texture of eighth notes and a bass clef staff with a single note. The third system consists of two empty bass clef staves.

## Sincronía

### Mapa de datos para movimiento no.4: 'Estado físico límite ó Prestissimo'

Estado rítmico cardíaco máximo de 33 especies animales (clave de Sol)

♩ - 60  
8<sup>va</sup>

- 88: Siphonaptera [Pulga, do 9] | s/d  
 87: Cimex lectularius [Chinche, **si 8**] | 1/8  
 86: Lepidoptera [Mariposa, la#8] | s/d  
 85: Anisoptera [Libelula, la 8] | s/d  
 84: Hylotrupes bajulus [Polilla, **sol#8**] | 1/4 1/8  
 83: Caelifera [Saltamontes, **sol 8**] | c  
 82: Pycnogonida [Araña de mar, fa#8] | s/d  
 81: Achaeareanea tepidariorum [Araña, **fa 8**] | 1/8  
 80: Helix aspersa [Caracol, **mi 8**] | 1/4 1/8  
 79: Mesodesma mactroides [Almeja, **re#8**] | 3/4  
 78: Mytilus galloprovincialis [Mejillón, re 8] | s/d  
 77: Podarcis hispanicus [Lagartija, **do#8**] | 1/16 1/32  
 76: Caridea [Camarón, do 8] | s/d  
 75: Palinurus elephas [Langosta, **si 7**] | 1/8 1/32  
 74: Carcinus maenas [Cangrejo, la#7] | s/d  
 73: Salamandra [Salamandra, **la 7**] | c  
 72: Trochilinae [Colibrí, sol#7] | s/d  
 71: Rattus norvegicus [Rata, **sol 7**] | c  
 70: Asteroidea [Estrella de mar, fa#7] | s/d  
 69: Passer domesticus [Gorrión, **fa 7**] | c  
 68: Pelophylax perezi [Rana, mi 7] | s/d  
 67: Bufo bufo [Sapo, re #7] | s/d  
 66: Serpentes [Serpiente, re 7] | s/d  
 65: Didelphimorphia [Zarigüeya, do #7] | s/d  
 64: Suncus murinus [Musaraña, **do 7**] | c  
 63: Corynorhinus townsendii [Murciélago, si 6] | s/d  
 62: Columba livia [Paloma, la#6] | s/d  
 61: Iguanidae [Iguana, **la 6**] | 1/8 1/64

- 60: Mustela putorius furo [Hurón, sol#6] | s/d  
 59: Erinaceinae [Erizo, **sol 6**] | c  
 58: Thunnus [Atún, **fa#6**] | 1/16 1/32  
 57: Oryctolagus cuniculus [Conejo, **fa 6**] | c  
 56: Nothura maculosa [Perdize, mi 6] | s/d  
 55: Melopsittacus undulatus [Perico, re#6] | s/d  
 54: Gallus gallus domesticus [Gallina, **re 6**] | c  
 53: Anas platyrhynchos domesticus [Pato, **do#6**] | c  
 52: Anser anser [Ganso, do 6] | s/d  
 51: Falco peregrinus [Halcón, si 5] | s/d  
 50: Accipitridae [Águila, la#5] | s/d  
 49: Grus grus [Cisne, **la 5**] | c  
 48: Felis silvestris catus [Gato, **sol#5**] | 1/16  
 47: Erethizon dorsatum [Puercoespín, sol 5] | s/d  
 46: Dasypodidae [Armadillo, fa#5] | s/d  
 45: Talpa europaea [Topo, fa 5] | s/d  
 44: Marmota marmota [Marmota, mi 5] | s/d  
 43: Strigidae [Buho, re #5] | s/d  
 42: Ornithorhynchus anatinus [Ornitorrinco, re 5] | s/d  
 41: Pelecanus onocrotalus [Pelicano, do #5] | s/d  
 40: Testudines [Tortuga, do 5] | s/d

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.

## Sincronía

### Mapa de datos para movimiento no.4: 'Estado físico límite ó Prestissimo'

Estado rítmico cardíaco máximo de 33 especies animales (clave de Fa)

♩ - 60

- 39: Apteryx australis [Kiwi, si 4] | s/d  
 38: Phascolarctos cinereus [Koala, la#4] | s/d  
 37: Octopus vulgaris [Pulpo, la 4] | s/d  
 36: Vulpini [Zorro, **sol#4**] | **c**  
 35: Pan troglodytes [Chimpance, sol 4] | s/d  
 34: Canis latrans [Coyote, fa#4] | s/d  
 33: Canis lupus familiaris [Perro, fa 4] | s/d  
 32: Canis lupus [Lobo, **mi 4**] | **1/16**  
 31: Ovis orientalis aries [Oveja, **re#4**] | **1/8**  
 30: Capra aegagrus hircus [Cabra, **re 4**] | **1/16 1/32 1/64**  
 29: Spheniscidae [Pingüino, **do#4**] | **1/16**  
 28: Homo sapiens [Humano, **do 4**] | **1/16 1/32**  
 27: Sus scrofa domestica [Cerdo, **si 3**] | **1/16 1/32 1/64**  
 26: Equus africanus-ferus [Mula, la#3] | s/d  
 25: Lacertilia [Lagarto, la 3] | s/d  
 24: Cervus elaphus [Venado, **sol#3**] | **1/16 1/32**  
 23: Antilope cervicapra [Antílope, sol 3] | s/d  
 22: Macropus giganteus [Cangüro, fa#3] | s/d  
 21: Panthera leo [León, fa 3] | s/d  
 20: Panthera tigris [Tigre, mi 3] | s/d  
 19: Rhea americana [Avestruz, re#3] | s/d  
 18: Lama glama [Llama, re 3] | s/d  
 17: Phoca vitulina [Foca, **do#3**] | **1/16 1/32**  
 16: Equus ferus caballus [Caballo, **do 3**] | **1/16 1/32**

- 15: Camelus bactrianus [Camello, si 2] | s/d  
 14: Odobenus rosmarus [Morsa, la#2] | s/d  
 13: Gorilla [Gorila, la 2] | s/d  
 12: Tursiops truncatus [Delfín, **sol#2**] | **c**  
 11: Bos primigenius taurus [Vaca, sol 2] | s/d  
 10: Bos primigenius taurus [Toro, fa#2] | s/d  
 9: Bos primigenius taurus [Buey, fa 2] | s/d  
 8: Ursus arctos arctos [Oso, mi 2] | s/d  
 7: Otaria flavescens [Lobo Marino, re#2] | s/d  
 6: Bos primigenius indicus [Cebuino, re 2] | s/d  
 5: Bison bison [Búfalo, do#2] | s/d  
 4: Selachimorph [Tiburón, do 2] | s/d  
 3: Giraffa camelopardalis [Girafa, si 1] | s/d  
 2: Loxodonta africana [Elefante, **la#1**] | **1/4 1/32**  
 1: Balaena mysticetus [Ballena, **la 1**] | **1/4 1/8**

s/d: Sin datos encontrados

c: Continuo, el ritmo es tan veloz que es percibido como una frecuencia continua, se interpreta como una nota prolongada.

Nota: Cada ritmo definido por especie es la conversión entre un dato encontrado en Pulsaciones Por Minuto (PPM o BPM -beat per minute- o Hz -hercios, ciclos por segundo-) a notación musical para 4/4, el ritmo final utilizado para el movimiento de la composición depende de la cantidad de datos encontrados y puede corresponder a sólo un espectro del rango posible de pulsaciones dentro del estado físico estudiado de la especie.

# Sincronía

## Movimiento no.4: 'Estado físico límite ó Prestissimo'

Estado rítmico cardíaco máximo de 33 especies animales

Lorena Mal

Emilio Hinojosa Carrión

[2013-2014]

♩ - 60

The musical score is written for a piano and consists of several systems of staves. The top system features a grand staff with two treble clefs. The first staff has a piano (p) dynamic marking and a fermata. The second staff contains a melodic line with a slur and a fermata. The second system includes two bass clef staves. The first bass staff has a fermata, and the second bass staff has a melodic line with a slur and a fermata. The third system consists of two treble clef staves. The first treble staff has a melodic line with a slur and a fermata, while the second treble staff is empty. The fourth system consists of two bass clef staves, both of which are empty.

Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo'

2 / 21

5

*p*

*p*

8<sup>va</sup>

8<sup>vb</sup>

Detailed description: This is a page of a musical score for a piece titled 'Sincronía. Movimiento no.4: "Estado físico en límite ó Prestissimo"'. The page is numbered '2 / 21' in the top right corner. The score is written for a piano and features several staves. The top two staves are for the right hand, and the bottom two are for the left hand. The music is in a 3/4 time signature. The first system (measures 1-3) shows a right-hand melody with a fermata over the first measure and a slur over the second and third. The left hand has a complex rhythmic pattern of eighth notes in the first measure, followed by a rest, and then a series of chords in the second and third measures. The second system (measures 4-6) continues the right-hand melody with a slur and a fermata. The left hand has a similar rhythmic pattern. The third system (measures 7-9) features a right-hand melody with a slur and a fermata, and a left-hand accompaniment with a slur and a fermata. The fourth system (measures 10-12) shows a right-hand melody with a slur and a fermata, and a left-hand accompaniment with a slur and a fermata. The fifth system (measures 13-15) shows a right-hand melody with a slur and a fermata, and a left-hand accompaniment with a slur and a fermata. The sixth system (measures 16-18) shows a right-hand melody with a slur and a fermata, and a left-hand accompaniment with a slur and a fermata. The seventh system (measures 19-21) shows a right-hand melody with a slur and a fermata, and a left-hand accompaniment with a slur and a fermata. The score includes dynamic markings such as *p* (piano) and *8<sup>va</sup>* (octave up) and *8<sup>vb</sup>* (octave down). The notation includes various note values, rests, slurs, and fermatas.

Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo'

3 / 21

Musical score for 'Estado físico en límite ó Prestissimo', page 3 of 21. The score is written for piano and features a complex rhythmic structure with multiple staves. The tempo is marked 'Prestissimo'. The score includes a variety of rhythmic patterns, including sixteenth and thirty-second notes, and rests. The dynamics are marked with 'p' (piano). The score is divided into measures by vertical bar lines. The first staff is a grand staff (treble and bass clefs). The second staff is a bass clef staff. The third staff is a bass clef staff with a 'p' dynamic marking. The fourth staff is a treble clef staff with a 'p' dynamic marking. The fifth staff is a treble clef staff. The sixth staff is a bass clef staff with a 'p' dynamic marking. The seventh staff is a bass clef staff with a 'p' dynamic marking. The eighth staff is a bass clef staff with a 'p' dynamic marking. The score is written in a key signature of one sharp (F#) and a 3/4 time signature. The first measure of the first staff is marked with a '8' in the upper left corner. The score is written in a style that is typical of a musical manuscript, with clear notation and dynamic markings.

Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo'

Musical score for 'Estado físico en límite ó Prestissimo', page 4 of 21. The score is written for a piano and includes a variety of musical notations such as treble and bass clefs, dynamic markings (p), and articulation symbols.

The score is organized into systems. The first system (measures 11-13) features a treble clef staff with a whole note chord at the beginning, followed by a series of eighth notes in the bass clef. The second system (measures 14-16) shows a complex rhythmic pattern in the bass clef with a piano (*p*) dynamic marking. The third system (measures 17-19) includes a treble clef staff with a piano (*p*) dynamic marking and a series of eighth notes, followed by a bass clef staff with a piano (*p*) dynamic marking. The fourth system (measures 20-22) features a bass clef staff with a piano (*p*) dynamic marking and a series of eighth notes, followed by a bass clef staff with a piano (*p*) dynamic marking. The score concludes with a final bass clef staff in measure 22, marked with a piano (*p*) dynamic marking.



Musical score for 'Estado físico en límite ó Prestissimo', page 5 of 21. The score is written for piano and includes measures 14 through 17. The notation is as follows:

- Measures 14-15:** The piano part features a melodic line in the right hand with a fermata over the final note, and a bass line with a half note and a quarter note. The left hand has a bass line with a half note and a quarter note.
- Measure 16:** The piano part features a melodic line in the right hand with a fermata over the final note, and a bass line with a half note and a quarter note. The left hand has a bass line with a half note and a quarter note.
- Measure 17:** The piano part features a melodic line in the right hand with a fermata over the final note, and a bass line with a half note and a quarter note. The left hand has a bass line with a half note and a quarter note.

The score includes dynamic markings such as *p* (piano) and *pp* (pianissimo). The tempo is indicated as *Prestissimo*. The score is written in a key signature of one sharp (F#) and a 2/4 time signature.

16

*p*

*p*

*p*

(8).....

The image shows a page of musical notation for a piece titled 'Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo''. The page is numbered 6 out of 21. The score is written for multiple instruments, including piano and strings. It features several staves with complex rhythmic patterns, including sixteenth and thirty-second notes, and rests. Dynamic markings such as *p* (piano) are present. A measure number '16' is indicated at the top left. A circled number '8' with a dashed line is located at the bottom left.

Musical score for 'Estado físico en límite ó Prestissimo', page 7 of 21. The score is written for piano and includes a variety of musical notations such as treble and bass clefs, dynamic markings (p), and articulation marks.

The score is organized into systems. The first system (measures 19-21) features a grand staff with treble and bass clefs. The right hand has a melodic line with a slur over measures 19-20 and a fermata in measure 21. The left hand has a rhythmic accompaniment of eighth notes in measure 19, followed by rests in measures 20 and 21.

The second system (measures 22-24) continues the piano accompaniment. The right hand has rests in measures 22 and 23, followed by a melodic phrase in measure 24 marked with *8va* and a slur. The left hand continues with eighth-note patterns in measure 22, rests in measure 23, and a melodic phrase in measure 24 marked with *8va*.

The third system (measures 25-27) shows the piano accompaniment continuing with eighth-note patterns in measure 25, followed by rests in measures 26 and 27. The right hand has rests in measures 25 and 26, followed by a melodic phrase in measure 27 marked with *8va*.

The fourth system (measures 28-30) features a complex piano accompaniment. The right hand has rests in measures 28 and 29, followed by a melodic phrase in measure 30 marked with *8va*. The left hand has eighth-note patterns in measure 28, followed by a dense sixteenth-note texture in measure 29, and rests in measure 30.

Musical score for 'Estado físico en límite ó Prestissimo', page 8 of 21. The score is written for piano and includes the following staves and markings:

- Staff 1 (Piano Right Hand):** Treble clef, starting at measure 22. It features a long, high-pitched note with a fermata, spanning across the first and second measures of the system.
- Staff 2 (Piano Left Hand):** Bass clef, mostly containing rests. It has a few notes in the second measure.
- Staff 3 (Piano Left Hand):** Bass clef, playing a rhythmic pattern of eighth notes with a dynamic marking of *p* (piano).
- Staff 4 (Piano Right Hand):** Treble clef, playing eighth notes with a dynamic marking of *p*. It includes an *8va* (octave) marking and a dashed line indicating the pitch contour.
- Staff 5 (Piano Right Hand):** Treble clef, playing a complex rhythmic pattern of eighth notes with a dynamic marking of *p*. It includes an *(8)* marking and a dashed line.
- Staff 6 (Piano Left Hand):** Bass clef, playing a rhythmic pattern of eighth notes with a dynamic marking of *p*.
- Staff 7 (Piano Left Hand):** Bass clef, playing a few notes in the second measure with a dynamic marking of *p*.

24 *p.*

The musical score consists of several systems of staves. The first system shows the right hand with a melodic line and the left hand with a rhythmic accompaniment. The second system continues the piece with a more intricate bass line. The third system includes a section marked with a circled '8' and a dashed line above it. The fourth system shows the bass line with a complex rhythmic pattern. The fifth system continues the bass line with a similar pattern. The score is marked with a piano (*p*) dynamic and includes various musical notations such as notes, rests, and accidentals.

27

The musical score is divided into four systems. The first system (measures 27-28) features a grand staff with a treble clef and a bass clef. A long slur spans across both staves. The second system (measures 29-30) consists of two bass clefs. The top staff has a piano (*p*) dynamic and a long slur. The bottom staff has a complex rhythmic pattern of sixteenth and thirty-second notes. The third system (measures 31-32) consists of two treble clefs. The top staff has an *8<sup>va</sup>* marking and a dashed line above it. The bottom staff has a piano (*p*) dynamic and a long slur. The fourth system (measures 33-34) consists of two bass clefs. The top staff has a piano (*p*) dynamic and a long slur. The bottom staff has a complex rhythmic pattern of sixteenth and thirty-second notes.

29

The musical score is divided into two systems. The first system (measures 29-31) features a grand staff with a treble clef on top and a bass clef on the bottom. The right hand (treble clef) plays a melodic line with a sharp sign and a 'p' dynamic marking, with an '8va' marking and a dashed line indicating an octave transposition. The left hand (bass clef) plays a rhythmic accompaniment of sixteenth notes. The second system (measures 32-34) features a grand staff with a treble clef on top and a bass clef on the bottom. The right hand (treble clef) continues the melodic line with a 'p' dynamic marking. The left hand (bass clef) plays a rhythmic accompaniment of sixteenth notes. A 'p' dynamic marking is also present in the second system.

32 (8)

8va

(8)



This musical score is for the fourth movement, 'Estado físico en límite ó Prestissimo', from the piece 'Sincronía'. It is page 13 of a 21-page score. The music is written for a grand piano, with a treble and bass staff for each hand. The score is divided into three systems. The first system (measures 36-38) features a treble staff with an 8va (octave) marking and a bass staff with a piano (*p*) dynamic. The second system (measures 39-41) continues the piano texture with a piano (*p*) dynamic. The third system (measures 42-44) includes a treble staff with an 8va marking and a bass staff with a piano (*p*) dynamic. The score concludes with an 8vb (sub-octave) marking in the bass staff.

The image displays a musical score for a piece titled "Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo'". The score is arranged in two systems, each containing a grand staff (treble and bass clefs) and a separate bass line.

**System 1 (Measures 39-42):**

- Measure 39:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.
- Measure 40:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.
- Measure 41:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.
- Measure 42:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.

**System 2 (Measures 43-46):**

- Measure 43:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.
- Measure 44:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.
- Measure 45:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.
- Measure 46:** Treble clef contains a melodic line with eighth notes and a sharp sign. Bass clef contains a melodic line with eighth notes.

Dynamic markings include *p* (piano) in measures 41 and 44. The score also features various musical notations such as slurs, ties, and repeat signs.

43 (8) 7

*p*

(8)

(8) 1

*p*

Detailed description: This is a page of a musical score for a piece titled 'Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo''. The page is numbered 15 out of 21. The score is written for a piano and features a complex rhythmic structure. It begins with a treble clef staff containing a series of chords, some of which are beamed together. Below this, there are two bass clef staves. The first bass staff contains a continuous eighth-note pattern, marked with a piano (*p*) dynamic and a hairpin indicating a crescendo. The second bass staff contains a similar eighth-note pattern, also marked with *p*. A dashed line separates this section from the next. The second section starts with a treble clef staff featuring chords and a bass clef staff with a similar eighth-note pattern, again marked with *p*. The score concludes with a final bass clef staff containing an eighth-note pattern, marked with *p*.

Musical score for 'Estado físico en límite ó Prestissimo'. The score is divided into two systems. The first system consists of a grand staff (treble and bass clefs) and a separate bass clef staff. The grand staff has a measure rest in the upper voice and a melodic line in the lower voice. The bass clef staff contains a rhythmic accompaniment of eighth notes with a *p* dynamic marking. The second system features a treble clef staff with a melodic line starting at measure 45, marked with an *8va* (octave) sign. The lower voice of the grand staff continues with the rhythmic accompaniment, also marked with a *p* dynamic. The score includes various musical notations such as rests, notes, and dynamic markings.

47

*p*

(8)

*p*

*p*

#

*p*

The musical score is presented in a multi-stem format. The first system consists of a grand staff (treble and bass clefs) with a treble clef on the upper staff and a bass clef on the lower staff. The second system has a bass clef on the upper staff and a bass clef on the lower staff. The third system has a treble clef on the upper staff and a treble clef on the lower staff. The fourth system has a bass clef on the upper staff and a bass clef on the lower staff. The fifth system has a bass clef on the upper staff and a bass clef on the lower staff. The notation includes various rhythmic values, slurs, accents, and dynamic markings. A piano (*p*) marking is present in the second system. A circled 8 (8) is in the third system. A piano (*p*) marking is in the fourth system. A sharp sign (#) is in the fifth system. A piano (*p*) marking is in the fifth system.

49

The musical score is written for a piano and is divided into two systems. The first system (measures 49-50) features a right hand with a melodic line of eighth and sixteenth notes, and a left hand with a complex rhythmic pattern of sixteenth notes. The second system (measures 51-52) continues the rhythmic complexity in the left hand, while the right hand has a more melodic and sustained line. A circled measure 50 in the top staff is highlighted. A dynamic marking 'p' is located at the bottom left of the page.

51 *8va*

The image shows a musical score for a piece titled 'Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo''. The score is on page 19 of 21. It features a grand staff with two treble clefs and two bass clefs. The first system (measures 51-52) includes a *8va* marking above the first treble staff. The second system (measures 53-54) continues the piece. The bottom bass staff has a *p* (piano) dynamic marking. The score contains various musical notations including notes, rests, slurs, and dynamic markings.

53

The musical score is written for a multi-staff instrument, likely a piano. It begins at measure 53. The first two staves (treble clef) show a melodic line with eighth and sixteenth notes, some with grace notes. The third and fourth staves (bass clef) feature a complex rhythmic pattern of sixteenth and thirty-second notes. The fifth and sixth staves (treble and bass clef) continue the rhythmic complexity. A dynamic marking *p* is located at the bottom of the page.



The image displays a musical score for a piece titled "Sincronía. Movimiento no.4: 'Estado físico en límite ó Prestissimo'". The score is written for piano and is divided into two systems. The first system begins at measure 55, marked with a piano (*p*) dynamic. The right hand features a melodic line with a trill-like figure and a slur over a group of notes, while the left hand plays a single note. The second system continues the piece, with the right hand playing a more complex melodic line and the left hand providing a rhythmic accompaniment of eighth notes. The score concludes with a final measure in the left hand, marked with a piano (*p*) dynamic.